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AVIATION TRAINING AND READINESS (T&R) MANUAL, CH-53
(SHORT TITLE: T&R MANUAL CH-53)

1. For administrative purposes, the Publications Control Number (PCN) has been reidentified. Change the PCN "10203356500" to read: "10203358100".

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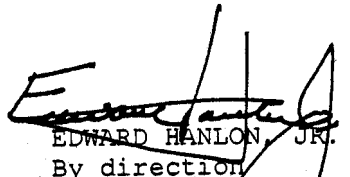
From: Commandant of the Marine Corps
To: Distribution List

Subj: AVIATION TRAINING AND READINESS (T&R) MANUAL, CH-53
(SHORT TITLE: T&R MANUAL, CH-53)

Ref: (a) MCO P3500.14G

Encl: (1) LOCATOR SHEET

1. Purpose. To publish policies, procedures and standards regarding the training of CH-53 aircrew per reference (a).
2. Cancellation. T&R Manual, MCO P3500.16C, Volume 3, Chapters 4 and 5.
3. Background. Reference (a) restructures the T&R manual organization from nine volumes to 25 individual Marine Corps orders. This order prescribes a unique template to provide the aviation commander with standardized programs of instruction. As such, this order deviates from the Five Paragraph Order Format directed by MCO 5215.1H.
4. Recommendations. Recommended changes to this order are invited, and will be submitted via the syllabus sponsor and the appropriate chain of command to: Commanding General, Training Command (C 473), Marine Corps Combat Development Command, 3300 Russell Road, Quantico, VA 22134-5001.
5. Reserve Applicability. This manual is applicable to the Marine Corps Reserve.
6. Certification. Reviewed and approved this date.


EDWARD HANLON, JR.
By direction

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ENCLOSURE (1)

RECORD OF CHANGES

Log completed change action as indicated.

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*** * N O T E * ***

Aircrews shall include aircrew coordination techniques as part of their brief.

CHAPTER 1

CH-53 PILOT

100. CH-53E UNIT TEMPLATE

NOTE

The capabilities defined and described in the core capability and unit template sections are provided to ensure each like squadron maintains a common base of training and depth of capabilities. When resources permit, and when in the judgement of the commander additional training would significantly increase the unit's war fighting capability, training to a level above these base capabilities is permitted. It is incumbent upon, and expected of, the commander to balance any increase in the depth of core capabilities against the long-term health and readiness of his unit while staying within his resource constraints.

1. Table Of Organization

SQUADRON

16 Aircraft

38 Pilots/26 Crew Chiefs

DETACHMENT

4 Aircraft

8 Pilots/4 Crew Chiefs

2. Squadron Core Capability

a. A core capable squadron, i.e., a 16 aircraft squadron, is able to sustain the following minimum performance on a daily basis during sustained contingency/combat operations, assuming at least 100 percent Primary Authorized Allowance (PAA), 90 percent in reporting status and 90 percent T/O on hand in all MOSSs. If < 90 percent, core capability will be degraded by a like percentage. The extent to which a core capable squadron is able to surge beyond its core capability is situation-dependent. Reserve squadron capability, based on an 8 plane PAA, is proportionately less.

b. A core capable squadron should maintain the capability to launch six sections High Light Level (HLL) or four sections Low Light Level (LLL) that are able to conduct: Night Vision Device (NVD) long range raid/reinforcement (to include aerial refueling), NVD Terrain Flight (TERF) external/internal combat re-supply, and NVD combined artillery raid/air movement from expeditionary and amphibious platforms.

c. A core capable detachment should maintain the capability to launch one section LLL or two sections HLL that are capable of conducting NVD long range raid/reinforcement (to include aerial refueling), NVD TERF external/internal combat re-supply, and NVD combined artillery raid/air movement from expeditionary and amphibious platforms.

3. Basic Aircrew Qualifications. As a minimum, in order to be considered core competent, a squadron must possess the following numbers of aircrew who are core competent in each core skill. (Note: If a squadron is below T/O, required numbers are reduced by a like percent.)

CORE SKILL	SQDN TOTAL (38 PILOTS)	SQDN PILOTS (Minus 1 Det)	DET PILOTS	SQDN TOTAL C/C(A/O)	SQDN C/C(A/O) (Minus 1 Det)	DET C/C(A/O)
FORM	24	16	8	12(12)	8(8)	4(4)
CAL	24	16	8	12(12)	8(8)	4(4)
TERF	24	16	8	12(12)	8(8)	4(4)
EXT	24	16	8	12(12)	8(8)	4(4)
DM	16	8	8	12(12)	8(8)	4(4)
AR	12	8	4	NA	NA	NA
CQ	18	10	8	9(8)	5(4)	4(4)
TAC	16	8	4	12(12)	8(8)	4(4)
AG	16	8	4	12(12)	8(8)	4(4)
NSQ HLL	24	16	8	12(12)	8(8)	4(4)
NSQ LLL	16	12	4	8(8)	6(6)	2(2)
Note: Crew chief surpluses may be used to satisfy AO requirements.						

4. Core Skills And Sorties. As a minimum, in order to be considered core skills complete, an individual must complete the sorties listed in the table below. Initial aircrew must fly all sorties. Refresher aircrew, previously core skill complete in a specific core skill, at a minimum must complete the "R" coded sorties.

	FORM	CAL	TERF	EXT	DM	AR	CQ	AG	TAC	TOTAL
1ST TOUR	2	6	7	7	1	3	7	4	4	39
2ND TOUR	1	3	4	5	1	2	7	2	2	24
T&R CODES	\$210 \$211*	\$220 \$221* \$222 \$223* 224 \$320 \$321* 322	\$230 \$231* \$232* \$233* \$330 \$331* 343	\$240* \$241 \$242* \$243* \$340 \$341* 342* 343	250 \$350*	260 \$360 \$361* \$362*	270 \$271* \$272* \$273* \$370* 371* 372*	\$280* \$380*	\$290 \$291* \$390 \$391*	
\$-Denotes events required for core competency. *-2 nd Tour.										

5. Sorties Required To Maintain Core Skills. For each twelve-month period after achieving competency, a pilot is required to fly the following number of sorties in each skill area to maintain that competency.

FORM	CAL	TERF	EXT	DM	AR	CQ	AG	TAC
2	2	2	3	1	2	1	1	1

6. Flight Leader/Instructor Designations. As a minimum, in order for a squadron to be considered core competent, it must possess the following numbers of aircrew in the listed flight leadership/instructor categories. (Note: If the squadron is staffed below T/O, required numbers are reduced by a like percent)

DESIGNATION	SQDN TOTAL PILOTS	SQDN PILOTS (Minus 1 Det)	DET PILOTS	SQDN TOTAL C/C(A/O)	SQDN C/C(A/O) (Minus 1 Det)	DET C/C(A/O)
HAC	16	12	4	-	-	-
SEC LDR	9	6	3	-	-	-
DIV LDR	6	4	2	-	-	-
FLT LDR	5	3	2	-	-	-
AMC	4	3	1	-	-	-
ARI	4	3	1	-	-	-
TERFI	6	4	2	5	3	2
DMI	3	2	1	3	2	1
NSI	5	4	1	5	4	1
WTI	3*	2	1*	3*	2	1*
AGI	NA	-	-	4	3	1
*7577 (WTI) Should not be department heads (CO, XO, OPSO, MO) to satisfy requirement.						

7. Sorties Required To Qualify For Designation As Flight LD/IP (UPDATE)

	SEC LDR	DIV LDR	FLT LDR	AMC	FCP	TERFI	DMI	ARI	NSI	WTI
SORTIES	1	1	1	1	1	3	3	2	4	*
T&R CODES	605	606	607	608	609	570, 571, 572	580, 581, 582	520, 521	590, 591, 592, 593	See MAWTS-1 Course Catalog

8. Sorties Required To Qualify For Designation As Crewchief Instructor

	TERFI	DMI	AGI	NSI	WTI
SORTIES	2	3	4	4	*
T&R CODES	570, 571	580, 581, 582	540, 541, 542, 543	590, 591, 592, 593	See MAWTS-1 Course Catalog

101. CH-53D UNIT TEMPLATE1. Table of Organization

SQUADRON
10 Aircraft
20 Pilots/12 Crewchiefs

2. Squadron Core Capability

a. A core capable squadron is able to sustain the following minimum performance on a daily basis during sustained contingency/combat operations, assuming at least 100 percent PAA, 90 percent in reporting status and 90 percent T/O on-hand in all MOSSs. If < 90 percent, core capability will be degraded by a like percentage. The extent to which a core capable squadron is able to surge beyond its core capability is situation-dependent.

b. A core capable squadron is able to sortie two sections HLL or one section LLL able to conduct: long range raid/reinforced, external/internal combat re-supply, air movement from expeditionary and amphibious platforms.

3. Basic Aircrew Qualifications. As a minimum, in order to be considered core competent, a squadron must possess the following numbers of aircrew who are core competent in each core skill. (Note: If a squadron is staffed below T/O, required numbers are reduced by a like percent)

CORE SKILL	SQDN PILOTS	SQDN C/C(A/O)
FORM	8	4(4)
CAL	8	4(4)
TERF	8	4(4)
EXT	8	4(4)
DM	4	4(4)
CQ	4	4(4)
AG	8	4(4)
TAC	4	4(4)
NSQ HLL	8	4(4)
NSQ LLL	4	2(2)
Crewchief surpluses may be used to satisfy AO requirements.		

4. Core Skills and Sorties. As a minimum, in order to be considered core skills complete, an individual must complete the sorties listed in the table below. Initial aircrew must fly all sorties. Refresher aircrew, previously core skill complete in a specific core skill, at a minimum must complete the "R" coded sorties.

	FORM	CAL	TERF	EXT	DM	CQ	AG	TAC	TOTAL
1ST TOUR	2	6	6	8	1	7	4	4	36
2ND TOUR	1	3	4	5	1	7	2	2	23
T&R CODES	\$210 \$211*	\$220 \$221* \$222 \$223* \$320 \$321* 322	\$230 \$231* \$232* \$233* \$330 \$331*	\$240* \$241 \$242* \$243* \$340 \$341* 342* 343	250 \$350*	270 \$271* \$272* \$273* \$370* 371* 372*	\$280* \$380*	\$290 \$291* \$390 \$391*	
\$-Denotes events required for core competency. *-2 nd Tour.									

5. Sorties Required To Maintain Core Skills. For each twelve month period after achieving competency, a pilot is required to fly the following number of sorties in each skill area to maintain that competency.

FORM	CAL	TERF	EXT	DM	AG	CQ	TAC
2	2	2	3	1	1	1	1

6. Flight Leader/Instructor Qualifications. As a minimum, in order for a squadron to be considered core competent, it must possess the following numbers of aircrew in the listed flight leadership/instructor categories. (Note: If the squadron is staffed below T/O, required numbers are reduced by a like percent)

DESIGNATION	SQDN PILOTS	SQDN C/C(A/O)
HAC	4	-
SEC LDR	3	-
DIV LDR	2	-
FLT LDR	2	-
AMC	2	-
TERFI	4	3
DMI	2	1
NSI	3	3
WTI	1	1
AGI	-	1

7. Sorties Required to Qualify For Designation as Flight LD/IP

	SEC LDR	DIV LDR	FLT LDR	AMC	FCP
SORTIES	1	1	1	1	1
T&R CODES	605	606	607	608	609

	TERFI	DMI	ARI	NSI	WTI
SORTIES	3	3	N/A	4	*
T&R CODES	570, 571, 572	580, 581, 582	N/A	590, 591, 592, 593	See MAWTS-1 Catalog

8. Sorties Required to Qualify For Designation As Crewchief Instructor

	TERFI	DMI	AGI	NSI	WTI
SORTIES	2	3	4	4	*
T&R CODES	570, 571	580, 581, 582	540, 541, 542, 543	590, 591, 592, 593	See MAWTS-1 Catalog

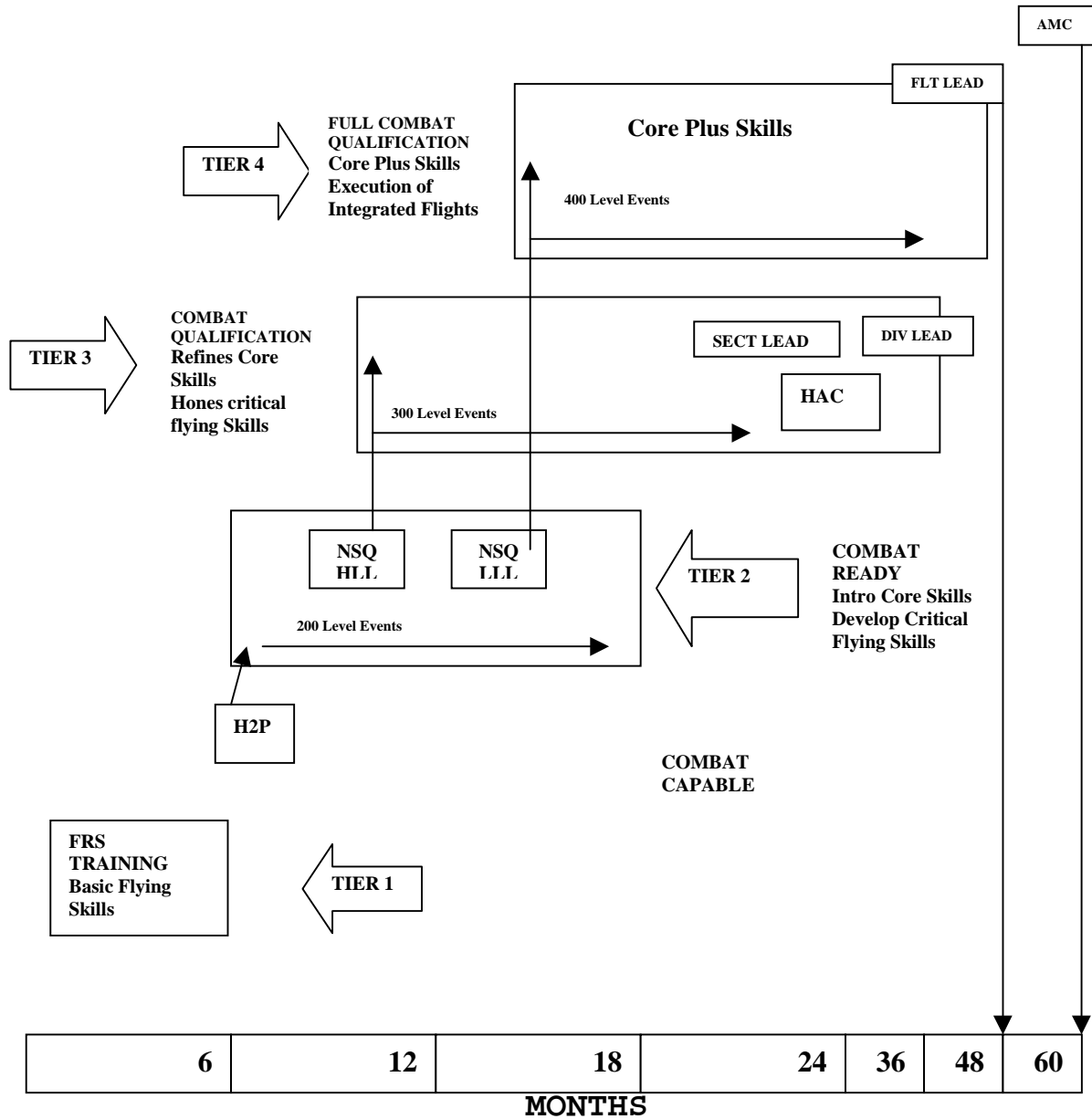


Figure 1-1.--CH-53 Pilot Notional Training Progression Model.

102. POI FOR BASIC/TRANSITION PILOT

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1-2	CH-53D or CH-53E Familiarization	Training Squadron
3-24	Combat Capable Phase	Training Squadron
25-60	Combat Ready Phase	Tactical Squadron
61-96	Combat Qualification Phase	Tactical Squadron
96+	Full Combat Qualification Phase	Tactical Squadron

103. POI FOR CONVERSION PILOT

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1-2	CH-53E Familiarization	Training Squadron
3-12	Combat Capable Phase	Training Squadron
13-24	Combat Ready Phase	Tactical Squadron
25-36	Combat Qualification Phase	Tactical Squadron
36+	Full Combat Qualification Phase	Tactical Squadron

104. POI FOR CH-53 SERIES CONVERSION PILOT

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1-2	CH-53D or CH-53E Familiarization	Training Squadron
3-11	Combat Capable Phase	Training Squadron
12-14	Combat Ready Phase	Tactical Squadron
15-17	Combat Qualification Phase	Tactical Squadron
17+	Full Combat Qualification Phase	Tactical Squadron

105. POI FOR REFRESHER PILOT

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1-2	CH-53D or CH-53E Familiarization	Training Squadron
3-9	Combat Capable Phase	Training Squadron
10-17	Combat Ready Phase	Trng/Tact Squadron
18-25	Combat Qualification Phase	Trng/Tact Squadron
25+	Full Combat Qualification Phase	Trng/Tact Squadron

106. POI FOR MODIFIED REFRESHER PILOT

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1-2	CH-53D or CH-53E Familiarization	Training Squadron
3-6	Combat Capable Phase	Training Squadron

107. POI FOR INSTRUCTOR PILOT

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1-4	Flight Instructor	Training Squadron

110. GROUND TRAINING COURSES OF INSTRUCTIONCOURSEACTIVITY

CH-53E Familiarization
 SERE School
 Instrument School
 Combined Service Support
 Nuclear Loading School

Training Squadron
 Joint Training Course
 Trng/Tact Squadron
 Trng/Tact Squadron
 Tactical Squadron

111. AIRCREW TRAINING REFERENCES. The following references shall be used to ensure safe and standardized training procedures, grading criteria, and aircraft operation:

OPNAVINST 3710.7

NATOPS General Flight and Operations

NAVAIR 00-80T-106

LHA,LPH,LHD NATOPS Manual

NWP-42

Shipboard Helicopter Operations Manual

NAVAIR 01-230-HMA-1

CH-53A/D NATOPS Flight Manual

NAVAIR A1-H53BE-NFM-000

CH-53E NATOPS Flight Manual

NAVAIR 00-80T-112

NATOPS Instrument Flight Manual

NWP 3-22.5-CH53

CH-53 Tactical Manual

MCO P3500.14

T&R Manual, Administrative

MCO 3501.4

Marine Corps Combat Readiness and Evaluation System

MAWTS-1

MAWTS-1 Course Catalog

MAWTS-1

NVD Manual

MAWTS-1

Defensive Maneuvering Manual

MAWTS-1

DACT Manual

NAVAIR 00-80T-110

NATOPS Air-to-Air Refueling Manual

AFTTP 3-1

Threat Reference Manual

MCRP 4-23E VOL 1,2,3

Multi-Helicopter External Manual

112. SQUADRON LEVEL TRAINING. The following references/lectures are covered on an as required basis during the various levels of air/ground training:

NATOPS Manual	Aviation Operations in Urban Terrain
Tactics Manual	NEO Execution
Instrument Procedures	Objective Area Planning
Operational Risk management	Rapid Response Planning
Cockpit Resource Management	Specific Excess Power & Maneuverability
Shipboard Procedures	Tactical Briefing & Debriefing
Intelligence Briefs	Tactical Aircrew Coordination
Weapons Qualification	Tactics in the Night Environment
Survival, Resistance, Evasion & Escape	Control of Acft & Missiles
	MAGTF Fire Support
	Coordination Measures
	Marine Corps Planning Process
	TRAP Planning
ALE-39/AAR-47	
APR-39	IR SAM Threat to Assault Support (S)
ANVIS HUD	Radar SAM Threat to Assault Support (S)
ARD-210	AAA Threat to Assault Support (S)
Artillery Raid	Rotary Wing Threat to Assault Support (S)
Defensive Measures	Fixed Wing Threat to Assault Support (S)
CH-53E FLIR	Laser Threat (S)
Heavy Lift External Operations	Evasive Maneuvers (S)
Rapid Ground Refueling	Threat Analysis & Counter-Attacks (S)
Tactical Aerial Refueling	Intelligence Support to Mission Planners (S)
Tactical Bulk Fuel Delivery System	Rules of Engagement & The Law of War (S)
Tactical Employment of GPS	
Terrain Flight	
Forward Arming & Refueling Point	
Recognition Training	
NVG Adjustment Procedures	
NVG Human Visual System	
NVG Misperceptions & Illusions	
NVG Route Planning	
NVG Night Operations	
The Night Environment	
Light Level Calendar/Shadow Determination	
NVG Ordnance	
Intro to Laser Systems	
FLIR Theory and Introduction	
FLIR Operational Considerations	
FLIR Systems and Image Optimization	
NVG/FLIR Sensor Integration	
Assault Support Mission Planning	
Assault Support Escort Tactics	
Basic Radar Principles	
Execution Checklist	
Fastrope	
Helocast	
Rappel Operations	
SPIE	
Helicopterborne Assault Key Players	
MCCRES	

120. FLIGHT TRAINING FOR BASIC PILOT/TRANSITION (53E)1. Combat Capable Phase

<u>STAGE</u>	<u>ACFT/SIM FLIGHTS</u>	<u>ACFT/SIM HOURS</u>	<u>ACFT/SIM PERCENT</u>
Basic Qualification	-	-	25.0/0.0
Familiarization	13/8	19.5/8.5	13.0/1.6
Instruments	4/5	6.0/5.0	3.0/1.0
Navigation	2/1	4.0/1.0	2.0/0.2
Formation	2/1	3.0/1.0	2.0/0.2
Confined Area Landings	3/1	5.0/1.0	3.0/0.2
External Loads	4/0	5.0/0.0	4.0/0.0
Terrain Flight	2/0	3.0/0.0	2.0/0.0
Review	1/0	1.5/0.0	1.3/0.0
Combat Capable Pilot Check	1/0	2.0/0.0	1.5/0.0
TOTAL FOR PHASE	32/16	49.0/16.5	56.8/3.2
COMBINED TOTAL	48	65.5	60.0
ACCUMULATION FOR BASIC POI	48	65.5	60.0

2. Combat Ready Phase

<u>STAGE</u>	<u>ACFT/SIM FLIGHTS</u>	<u>ACFT/SIM HOURS</u>	<u>ACFT/SIM PERCENT</u>
Familiarization/Instruments	1/1	1.5/1.5	0.2/0.1
Formation	2/0	3.5/0.0	1.3/0.0
Confined Area Landings	5/0	8.0/0.0	2.3/0.0
Terrain Flight	4/0	7.0/0.0	2.9/0.0
External Loads	4/0	6.0/0.0	3.0/0.0
Defensive Measures	0/1	0.0/1.5	0.0/0.1
Aerial Refueling (53E)	0/1	0.0/1.0	0.0/0.1
Field Carrier Landing Practice	3/1	3.0/1.0	2.5/0.1
Aerial Gunnery	1/0	2.0/0.0	0.4/0.0
Tactics	2/0	4.0/0.0	2.0/0.0
TOTAL FOR PHASE	22/4	35.0/5.0	14.6/0.4
COMBINED TOTAL	26	40.0	15.0
ACCUMULATION FOR BASIC POI	74	105.5	75.0

3. Combat Qualification Phase

<u>STAGE</u>	<u>ACFT/SIM FLIGHTS</u>	<u>ACFT/SIM HOURS</u>	<u>ACFT/SIM PERCENT</u>
Confined Area Landings	3/0	5.0/0.0	2.5/0.0
Terrain Flight	2/0	3.5/0.0	2.5/0.0
External Loads	4/0	6.5/0.0	5.0/0.0
Defensive Measures	1/0	2.0/0.0	1.0/0.0
Aerial Refueling (53E)	3/0	4.5/0.0	3.5/0.0
Carrier Qualification	3/0	4.5/0.0	2.5/0.0
Aerial Gunnery	1/0	1.5/0.0	0.5/0.0
Tactics	2/0	4.0/0.0	2.5/0.0
TOTAL FOR PHASE	19/0	31.5/0.0	20.0/0.0
COMBINED TOTAL	19	31.5	20.0
ACCUMULATION FOR BASIC POI	93	137.0	95.0

4. Full Combat Qualification Phase

<u>STAGE</u>	<u>ACFT/SIM FLIGHTS</u>	<u>ACFT/SIM HOURS</u>	<u>ACFT/SIM PERCENT</u>
Helicopter Insertion & Extraction	3/0	4.5/0.0	0.9/0.0
Defensive Measures	2/0	2.0/0.0	1.0/0.0
Nuclear, Biological, and Chemical	1/0	1.0/0.0	0.3/0.0
Tactics	4/0	10.0/0.0	2.8/0.0
TOTAL FOR PHASE	10/0	17.5/0.0	5.0/0.0
COMBINED TOTAL	10	17.5	5.0
TOTAL FOR BASIC POI	103	154.5	100.0

121. FLIGHT TRAINING FOR CONVERSION PILOT (53E)1. Combat Capable Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Familiarization	8/3	12.0/3.5
Instruments	3/2	4.5/2.0
Formation	1/1	1.5/1.0
Confined Area Landings	1/0	1.5/0.0
External Loads	4/0	5.0/0.0
Terrain Flight	1/0	1.5/0.0
Review	1/0	1.5/0.0
Combat Capable Pilot Check	1/0	2.0/0.0
TOTAL FOR PHASE	20/6	29.5/6.5
COMBINED TOTAL	26	36.0
ACCUMULATION FOR CONVERSION POI	26	36.0

2. Combat Ready Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Familiarization/Instruments	1/1	1.5/1.5
Formation	2/0	3.5/0.0
Confined Area Landings	5/0	8.0/0.0
Terrain Flight	4/0	7.0/0.0
External Loads	4/0	6.0/0.0
Defensive Measures	0/1	0.0/1.5
Aerial Refueling	0/1	0.0/1.0
Field Carrier Landing Practice	3/1	3.0/1.0
Aerial Gunnery	1/0	2.0/0.0
Tactics	2/0	4.0/0.0
TOTAL FOR PHASE	22/4	35.0/5.0
COMBINED TOTAL	26	40.0
ACCUMULATION FOR CONVERSION POI	52	76.0

3. Combat Qualification Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Confined Area Landings	3/0	5.0/0.0
Terrain Flight	2/0	3.5/0.0
External Loads	4/0	6.5/0.0
Defensive Measures	1/0	2.0/0.0
Aerial Refueling	3/0	4.5/0.0
Carrier Qualifications	3/0	4.5/0.0
Aerial Gunnery	1/0	1.5/0.0
Tactics	2/0	4.0/0.0
TOTAL FOR PHASE	19/0	31.5/0.0
COMBINED TOTAL	19	31.5
ACCUMULATION FOR CONVERSION POI	71	107.5

4. Full Combat Qualification Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Helicopter Insertion & Extraction	3/0	4.5/0.0
Defensive Measures	2/0	2.0/0.0
Nuclear, Biological, and Chemical	1/0	1.0/0.0
Tactics	4/0	10.0/0.0
TOTAL FOR PHASE	10/0	17.5/0.0
COMBINED TOTAL	10	17.5
TOTAL FOR CONVERSION POI	81	125.0

122. FLIGHT TRAINING FOR CH-53 SERIES CONVERSION PILOT (53D TO 53E)1. Combat Capable Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Familiarization	5/3	7.5/3.5
Instruments	2/2	3.0/2.0
Formation	1/1	1.5/1.0
Confined Area Landings	1/0	1.5/0.0
External Loads	4/0	5.0/0.0
Terrain Flight	1/0	1.5/0.0
Review	1/0	1.5/0.0
Combat Capable Pilot Check	1/0	2.0/0.0
TOTAL FOR PHASE	16/6	23.5/6.5
COMBINED TOTAL	22	30.0
ACCUMULATION FOR SERIES CONVERSION POI	22	30.0

2. Combat Ready Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Familiarization	0/1	0.0/1.5
Confined Area Landings	3/0	5.0/0.0
Terrain Flight	2/0	3.5/0.0
External Loads	3/0	4.5/0.0
Defensive Measures	0/1	0.0/1.5
Aerial Refueling	0/1	0.0/1.0
Field Carrier Landing Practice	3/1	3.0/1.0
Aerial Gunnery	1/0	2.0/0.0
TOTAL FOR PHASE	12/4	18.0/5.0
COMBINED TOTAL	16	23.0
ACCUMULATION FOR SERIES CONVERSION POI	38	53.0

3. Combat Qualification Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Confined Area Landings	2/0	3.5/0.0
Terrain Flight	1/0	2.0/0.0
External Loads	4/0	6.5/0.0
Defensive Measures	1/0	2.0/0.0
Aerial Refueling	3/0	4.5/0.0
Carrier Qualifications	3/0	4.5/0.0
Aerial Gunnery	1/0	1.5/0.0
Tactics	2/0	4.0/0.0
TOTAL FOR PHASE	17/0	28.5/0.0
COMBINED TOTAL	17	28.5
ACCUMULATION FOR SERIES CONVERSION POI	55	81.5

4. Full Combat Qualification Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Helicopter Insertion & Extraction	3/0	4.5/0.0
Defensive Measures	2/0	2.0/0.0
Nuclear, Biological, and Chemical	1/0	1.0/0.0
Tactics	3/0	8.0/0.0
TOTAL FOR PHASE	9/0	15.5/0.0
COMBINED TOTAL	9	15.5
TOTAL FOR CH-53 SERIES CONVERSION POI	64	97.0

123. FLIGHT TRAINING FOR REFRESHER PILOT (53E)1. Combat Capable Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Familiarization	4/3	6.0/3.5
Instruments	2/2	3.0/2.0
Formation	1/1	1.5/1.0
Confined Area Landings	1/0	1.5/0.0
External Loads	2/0	3.0/0.0
Terrain Flight	1/0	1.5/0.0
Review	1/0	1.5/0.0
Combat Capable Pilot Check	1/0	2.0/0.0
TOTAL FOR PHASE	13/6	20.0/6.5
COMBINED TOTAL	19	26.5
ACCUMULATION FOR REFRESHER POI	19	26.5

2. Combat Ready Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Familiarization	0/1	0.0/1.5
Confined Area Landings	3/0	5.0/0.0
Terrain Flight	2/0	3.5/0.0
External Loads	2/0	3.0/0.0
Defensive Measures	0/1	0.0/1.5
Aerial Refueling	0/1	0.0/1.0
Aerial Gunnery	1/0	2.0/0.0
TOTAL FOR PHASE	8/3	13.5/4.0
COMBINED TOTAL	11	17.5
ACCUMULATION FOR REFRESHER POI	30	44.0

3. Combat Qualification Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Confined Area Landings	2/0	3.5/0.0
Terrain Flight	1/0	2.0/0.0
External Loads	3/0	5.0/0.0
Defensive Measures	1/0	2.0/0.0
Aerial Refueling (CH-53E)	2/0	3.0/0.0
Carrier Qualification	1/0	1.5/0.0
TOTAL FOR PHASE	10/0	17.0/0.0
COMBINED TOTAL	10	17.0
ACCUMULATION FOR REFRESHER POI	40	61.0

4. Full Combat Qualification Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Helicopter Insertion & Extraction	3/0	4.5/0.0
Defensive Measures	2/0	2.0/0.0
Nuclear, Biological, and Chemical	1/0	1.0/0.0
Tactics	3/0	8.0/0.0
TOTAL FOR PHASE	9/0	15.5/0.0
COMBINED TOTAL	9	15.5
TOTAL FOR REFRESHER POI	49	76.5

124. FLIGHT TRAINING FOR BASIC/TRANSITION PILOT (53D)1. Combat Capable Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS	ACFT/SIM PERCENT
Basic Qualification	-	-.-	25.0/0.0
Familiarization	13/8	19.5/8.5	13.0/1.6
Instruments	4/5	6.0/5.0	3.0/1.0
Navigation	2/1	4.0/1.0	2.0/0.2
Formation	2/1	4.0/1.0	2.0/0.2
Confined Area Landings	3/1	5.0/1.0	3.0/0.2
External Loads	4/0	5.0/0.0	4.0/0.0
Terrain Flight	2/0	3.0/0.0	2.0/0.0
Review	1/0	1.5/0.0	1.3/0.0
Combat Capable Pilot Check	1/0	2.0/0.0	1.5/0.0
TOTAL FOR PHASE	32/16	50.0/16.5	56.8/3.2
COMBINED TOTAL	48	66.5	60.0
ACCUMULATION FOR BASIC POI	48	66.5	60.0

2. Combat Ready Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS	ACFT/SIM PERCENT
Familiarization/Instruments	1/0	1.5/0.0	0.5/0.0
Formation	2/0	3.5/0.0	1.3/0.0
Confined Area Landings	4/0	6.5/0.0	2.5/0.0
Terrain Flight	4/0	7.0/0.0	3.1/0.0
External Loads	4/0	6.0/0.0	2.5/0.0
Field Carrier Landing Practice	3/1	3.0/1.0	2.5/0.2
Aerial Gunnery	1/0	2.0/0.0	0.4/0.0
Tactics	2/0	4.0/0.0	2.0/0.0
TOTAL FOR PHASE	21/1	33.5/1.0	14.8/0.2
COMBINED TOTAL	22	34.5/0.0	15.0
ACCUMULATION FOR BASIC POI	70	101.0	75.0

3. Combat Qualification Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS	ACFT/SIM PERCENT
Confined Area Landings	2/0	3.5/0.0	3.0/0.0
Terrain Flight	2/0	3.5/0.0	3.0/0.0
External Loads	4/0	6.5/0.0	5.0/0.0
Defensive Measures	1/0	2.0/0.0	1.5/0.0
Carrier Qualification	3/0	4.5/0.0	2.5/0.0
Aerial Gunnery	1/0	1.5/0.0	1.0/0.0
Tactics	2/0	4.0/0.0	4.0/0.0
TOTAL FOR PHASE	15/0	25.5/0.0	20.0/0.0
COMBINED TOTAL	15	25.5/0.0	20.0
ACCUMULATION FOR BASIC POI	85	126.5	95.0

4. Full Combat Qualification Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS	ACFT/SIM PERCENT
Helicopter Insertion & Extraction	3/0	4.5/0.0	0.9/0.0
Defensive Measures	2/0	2.0/0.0	1.0/0.0
Nuclear, Biological, and Chemical	1/0	1.0/0.0	0.3/0.0
Tactics	4/0	10.0/0.0	2.8/0.0
TOTAL FOR PHASE	10/0	17.5/0.0	5.0/0.0
COMBINED TOTAL	10	17.5	5.0
TOTAL FOR BASIC POI	95	144.0	100.0

125. FLIGHT TRAINING FOR CONVERSION PILOT (53D)1. Combat Capable Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Familiarization	8/3	12.0/3.5
Instruments	3/2	4.5/2.0
Formation	1/1	1.5/1.0
Confined Area Landings	1/0	1.5/0.0
External Loads	4/0	5.0/0.0
Terrain Flight	1/0	1.5/0.0
Review	1/0	1.5/0.0
Combat Capable Pilot Check	1/0	2.0/0.0
TOTAL FOR PHASE	20/6	29.5/6.5
COMBINED TOTAL	26	36.0
ACCUMULATION FOR CONVERSION POI	26	36.0

2. Combat Ready Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Familiarization/Instruments	1/0	1.5/0.0
Formation	2/0	3.5/0.0
Confined Area Landings	4/0	6.5/0.0
Terrain Flight	4/0	7.0/0.0
External Loads	4/0	6.0/0.0
Field Carrier Landing Practice	3/1	3.0/1.0
Aerial Gunnery	1/0	2.0/0.0
Tactics	2/0	4.0/0.0
TOTAL FOR PHASE	21/1	33.5/1.0
COMBINED TOTAL	22	34.5/0.0
ACCUMULATION FOR CONVERSION POI	48	70.5

3. Combat Qualification Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Confined Area Landings	2/0	3.5/0.0
Terrain Flight	2/0	3.5/0.0
External Loads	4/0	6.5/0.0
Defensive Measures	1/0	2.0/0.0
Carrier Qualification	3/0	4.5/0.0
Aerial Gunnery	1/0	1.5/0.0
Tactics	2/0	4.0/0.0
TOTAL FOR PHASE	15/0	25.5/0.0
COMBINED TOTAL	15	25.5/0.0
ACCUMULATION FOR CONVERSION POI	63	96.0

4. Full Combat Qualification Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Helicopter Insertion & Extraction	3/0	4.5/0.0
Defensive Measures	2/0	2.0/0.0
Nuclear, Biological, and Chemical	1/0	1.0/0.0
Tactics	4/0	10.0/0.0
TOTAL FOR PHASE	10/0	17.5/0.0
COMBINED TOTAL	10	17.5
TOTAL FOR CONVERSION POI	73	113.5

126. FLIGHT TRAINING FOR CH-53 SERIES CONVERSION PILOT (53E TO 53D)1. Combat Capable Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Familiarization	5/3	7.5/3.5
Instruments	2/2	3.0/2.0
Formation	1/1	1.5/1.0
Confined Area Landings	1/0	1.5/0.0
External Loads	4/0	5.0/0.0
Terrain Flight	1/0	1.5/0.0
Review	1/0	1.5/0.0
Combat Capable Pilot Check	1/0	2.0/0.0
TOTAL FOR PHASE	16/6	23.5/6.5
COMBINED TOTAL	22	30.0
ACCUMULATION FOR SERIES CONVERSION POI	22	30.0

2. Combat Ready Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Confined Area Landings	2/0	3.5/0.0
Terrain Flight	2/0	3.5/0.0
External Loads	3/0	4.5/0.0
Field Carrier Landing Practice	3/1	3.0/1.0
Aerial Gunnery	1/0	2.0/0.0
TOTAL FOR PHASE	11/1	16.5/1.0
COMBINED TOTAL	12	17.5
ACCUMULATION FOR SERIES CONVERSION POI	34	47.5

3. Combat Qualification Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Confined Area Landings	1/0	2.0/0.0
Terrain Flight	1/0	2.0/0.0
External Loads	4/0	6.5/0.0
Defensive Measures	1/0	2.0/0.0
Carrier Qualifications	3/0	4.5/0.0
Aerial Gunnery	1/0	1.5/0.0
Tactics	2/0	4.0/0.0
TOTAL FOR PHASE	13/0	22.5/0.0
COMBINED TOTAL	13	22.5/0.0
ACCUMULATION FOR SERIES CONVERSION POI	47	70.0

4. Full Combat Qualification Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Helicopter Insertion & Extraction	3/0	4.5/0.0
Defensive Measures	2/0	2.0/0.0
Nuclear, Biological, and Chemical	1/0	1.0/0.0
Tactics	3/0	8.0/0.0
TOTAL FOR PHASE	9/0	15.5/0.0
COMBINED TOTAL	9	15.5
TOTAL FOR CH-53 SERIES CONVERSION POI	56	85.5

127. FLIGHT TRAINING FOR REFRESHER PILOT (53D)1. Combat Capable Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Familiarization	4/3	6.0/3.5
Instruments	2/2	3.0/2.0
Formation	1/1	1.5/1.0
Confined Area Landings	1/0	1.5/0.0
External Loads	2/0	3.0/0.0
Terrain Flight	1/0	1.5/0.0
Review	1/0	1.5/0.0
Combat Capable Pilot Check	1/0	2.0/0.0
TOTAL FOR PHASE	13/6	20.0/6.5
COMBINED TOTAL	19	26.5
ACCUMULATION FOR REFRESHER POI	19	26.5

2. Combat Ready Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Familiarization	0/1	0.0/1.5
Confined Area Landings	2/0	3.5/0.0
Terrain Flight	2/0	3.5/0.0
External Loads	2/0	3.0/0.0
Aerial Gunnery	1/0	2.0/0.0
TOTAL FOR PHASE	7/1	12.0/1.5
COMBINED TOTAL	8	13.5
ACCUMULATION FOR REFRESHER POI	27	40.0

3. Combat Qualification Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Confined Area Landings	1/0	2.0/0.0
Terrain Flight	1/0	2.0/0.0
External Loads	3/0	5.0/0.0
Defensive Measures	1/0	2.0/0.0
Carrier Qualification	1/0	1.5/0.0
TOTAL FOR PHASE	7/0	12.5/0.0
COMBINED TOTAL	7	12.5
ACCUMULATION FOR REFRESHER POI	34	52.5

4. Full Combat Qualification Phase

STAGE	ACFT/SIM FLIGHTS	ACFT/SIM HOURS
Helicopter Insertion & Extraction	3/0	4.5/0.0
Defensive Measures	2/0	2.0/0.0
Nuclear, Biological, and Chemical	1/0	1.0/0.0
Tactics	3/0	8.0/0.0
TOTAL FOR PHASE	9/0	15.5/0.0
COMBINED TOTAL	9	15.5
TOTAL FOR REFRESHER POI	43	68.0

128. FLIGHT TRAINING FOR MODIFIED REFRESHER PILOT (53E AND 53D)

<u>STAGE</u>	<u>ACFT/SIM FLIGHTS</u>	<u>ACFT/SIM HOURS</u>
Familiarization	3	4.5
Instruments	1	1.5
Formation	1	1.5
Confined Area Landings	1	1.5
External Loads	1	1.5
Combat Capable Pilot Check	<u>1</u>	<u>2.0</u>
TOTAL	8	12.5

129. INSTRUCTOR TRAINING1. Day and Night Unaided Instructor Training (FRS only)

<u>STAGE</u>	<u>ACFT/SIM FLIGHTS</u>	<u>ACFT/SIM HOURS</u>
Familiarization	2	3.0
Instrument	1	2.0
Confined Area Landings	1	1.5
Formation	1	1.5
Externals	1	1.5
Standardization Check	<u>1</u>	<u>1.5</u>
TOTAL	7	11.0

2. Aerial Refueling Instructor

<u>STAGE</u>	<u>ACFT/SIM FLIGHTS</u>	<u>ACFT/SIM HOURS</u>
Aerial Refueling	<u>2</u>	<u>2.0</u>
TOTAL	2	2.0

129.1 EVALUATION FLIGHTS

<u>STAGE</u>	<u>ACFT/SIM FLIGHTS</u>	<u>ACFT/SIM HOURS</u>
Annual NATOPS Evaluation	1	1.5
Annual Instrument Evaluation	1	1.5
Helicopter Aircraft Commander	1	2.5
Section Leader	1	1.5
Division Leader	1	1.5
Flight Leader Check	1	1.5
Mission Commander Check	1	1.5
TERF Instructor	3	4.5
Aerial Refueling Instructor	2	2.0
Night System Instructor	<u>5</u>	<u>6.0</u>
TOTAL	17	24.0

130. GROUND/FLIGHT/SIMULATOR PERFORMANCE REQUIREMENTS

1. Purpose

a. To become familiar with aircraft limitations, operating procedures, and emergency procedures; demonstrate knowledge of NATOPS, local course rules, and safety regulations pertinent to flight operations.

b. The flight simulator is used for those events designated with an "S." To provide commanding officers the maximum amount of flexibility for training, some events allow for the optional use of simulators or aircraft. Those events will use "A/S" for aircraft preferred, simulator optional and "S/A" for simulator preferred, aircraft optional.

c. The visual system is required for completion of syllabus events in the simulator except for instrument flights that can be flown without the visual system.

2. General

a. This manual is written to allow for local conditions and yet remain unclassified. DC AVN and CG, MCCDC encourage squadrons to use the full range of tactics in the tactical manuals and adopt the latest developed and proven tactics.

b. This manual designs the combat capable training phase for an instructor and trainee to maximize training and to minimize syllabus support hours.

c. All flights shall terminate with a comprehensive debrief with emphasis on aircrew performance using all evaluation techniques.

d. Events annotated with an "N" must be flown at least 30 minutes after official sunset. Events annotated with "(N)" may be flown at night if desired.

e. Events annotated with "NS" must be flown with night vision goggles. Pilots may fly events annotated with "(NS)" with NVDs if desired.

f. All simulator "S" training codes should be completed prior to the appropriate flight in the aircraft for each stage.

g. All references to HNVS, HUD, Dual point Externals, TBFDS and Aerial Refueling apply only to the CH-53E. CH-53Ds will perform Single point externals on all external events.

3. Syllabus Assignment

a. Basic and Transition pilots will be assigned to fly the entire syllabus. Conversion and refresher pilots will fly those flights designated by a "C" or "R" in the flight description. Series conversion pilots (CH-53D to CH-53E/CH-53E to CH-53D) will fly those flights designated by an "H" in the event description. The squadron training officer shall ensure all Aircrew Training Forms (ATFs) are entered in section 3 of the Aircrew Performance Record (APR) for all initial qualification events designated by "C", "R" or "H" in the event description. These ATFs will replace ATFs previously entered in section 3. Figure 1-2 shows reflly interval and Combat Readiness Percentage (CRP).

b. Squadron Refresher Syllabus. The refresher syllabus is predicated on the experience of the refresher pilot. A pilot in the refresher syllabus should fly all "R" coded events. The commanding officer may tailor the refresher syllabus to fit the experience of the refresher pilot per T&R Manual, Administrative. When the "R" coded events within a stage of training are complete, the pilot may be credited with the CRP from the entire stage of training. This assumes the refresher pilot has previous proficiency in a stage of training. If the refresher pilot has no previous proficiency in a stage or particular event, then the refresher shall fly the entire stage or all events not previously flown.

4. Prior Designation/Qualification

a. Re-designation (HAC, SecLdr, DivLdr, FltLdr, AMC). Aircrew may be re-designated at the discretion of the commanding officer.

b. Re-qualification (TERFQ, NSQ HLL, NSQ LLL, ARQ, DMQ). Upon demonstration of proficiency in a specific core skill, an aircrew may be re-qualified at the discretion of the commanding officer.

c. Instructor Re-designation (TERFI, ARI, DMI, NSI). Upon demonstration of proficiency in a specific core skill, an aircrew may be re-designated as an instructor in that core skill (IAW T&R Vol. III and MAWTS-1 course catalog) at the discretion of the commanding officer.

5. Crew Position Designator. The emphasis in training for basic pilot training should be in the left seat through combat capable training.

6. Aircrew Evaluation Flights. All pilots shall have an evaluation form completed for the following:

a. NATOPS Check (CCX-191, FL-604 and EVAL-600). A designated NATOPS instructor/assistant shall evaluate these flights.

b. Instrument Check (EVAL-601). A designated instrument instructor shall evaluate EVAL-601 annually.

c. All initial syllabus events or additional events recommended by the Squadron Standardization Board for the basic, conversion, transition, or refresher pilot will be flown with an aircraft commander who is proficient in that syllabus event and will evaluate the sortie and write an ATF.

d. For all syllabus events waived by the commanding officer, the squadron training officer shall place a waiver letter in section 3 of the APR.

7. Aircrew Coordination. Aircrews shall brief techniques of aircrew coordination for all flights and/or events.

131. COMBAT CAPABLE PHASE1. Familiarization (FAM)

a. Purpose. To develop preliminary flight skills in the CH-53 and become familiar with aircraft flight characteristics, limitations, and emergency procedures; to develop proficiency in all maneuvers contained in the familiarization stage, and to develop proficiency to conduct safe operations during day and night.

b. General

(1) Prior to FAM-110, complete appropriate CBT/audio-visual training and conduct a thorough preflight, post flight inspection and a cockpit familiarization to include a blindfold cockpit check. FAM-110 through FAM-115 will normally be completed prior to flying higher stage events. Discuss and become thoroughly familiar with all aspects of aircrew coordination applicable to familiarization stage maneuvers as described in the appropriate CH-53 NATOPS Flight Manual and FRS Standardization Manual.

(2) Pilots shall conduct Combat Capable Night Systems (NS) phase flights under High Light Level (HLL) ambient conditions with a Night Systems FAM Instructor (NSFI) or Night Systems Instructor (NSI).

c. Crew Requirement. IP/RAC/CC. AO required for FAM-121 and FAM-122.

d. Ground Training. Pilots should complete the appropriate simulator training prior to beginning the combat capable training flight.

e. Simulator Training. (8 Events, 8.5 Hours).

f. Flight Training. (13 Flights, 19.5 Hours).

SFAM-100

1.0

C,R,H S

Goal. Introduce normal cockpit procedures, start procedures, and shutdown procedures.

RequirementIntroduce:

Pre-start checklist.
 Post APP start checklist.
 Starting engines/rotors checklist.
 Pre-taxi checklist.
 Cargo ramp and door procedures checklist.
 Operation of engine trim switches.
 Cruise checklist.
 Fuel transfer checklist.
 Monitoring of instruments (fuel gauges).
 Operation of the ICS and radios.
 Fuel management.
 Pre-landing checklist.
 Shutdown checklist.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. WST/APT.

SFAM-101

1.0

S

Goal. Introduce aircraft emergencies, normal ground and flight procedures. Review start/shutdown procedures.

Requirement

Introduce:

- Aircrew brief.
- External fuel tank jettison.
- Cargo ramp/door operation.
- Engine start emergencies.
- Vertical takeoff to a hover.
- Transition to forward flight.
- Normal approaches to a hover and normal vertical landing.
- Engine compartment fire on the ground.
- Single and/or dual engine compartment fires in-flight.
- Simultaneous engine compartment fires in-flight.
- APP or cabin heater fire.
- Fuselage fire.
- Fuel dump.

Practice:

- Start/shutdown procedures.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. WST/APT.

SFAM-102

1.0

S

Goal. Introduce engine malfunctions. Practice cockpit and flight procedures, start/shutdown checklist and all previously introduced emergencies.

Requirement

Introduce:

- Blade/pylon fold system switchology.
- CH-53 NATOPS brief/CH-53 NATOPS debrief.
- Maximum performance takeoff.
- Straight-in approach.
- Engine restarts during flight.
- Crosswind landing.
- Single engine failure (hover and takeoff).
- Effects of gross weight on single and/or dual engine performance.
- Single and/or dual engine failure at altitude.
- Engine shutdown in-flight.

Compressor stall.
 Engine power loss.
 Engine post-shutdown fire.

Practice:

Cockpit and flight procedures.
 Start/shutdown checklist.
 All previously introduced emergencies.

Performance Standards. IAW CH-53 NATOPS and FRS
 Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. WST/APT.

SFAM-103

1.0

S

Goal. Introduce running landings and autorotations. Practice aircraft emergencies, previously introduced flight procedures and normal cockpit procedures.

Requirement

Introduce:

Running takeoff/landing.
 Wave-off.
 Single and/or dual engine wave-off/landing.
 Power recovery autorotation.
 High angle of bank maneuvering and the effects of variables (angle of bank, power required, descent rate, gross weight, temperature, density altitude, etc.) on the performance of the aircraft.
 Dual engine failure at altitude.
 Engine overspeed.
 Single and/or dual engine failure (hover/takeoff).
 Nf flex shaft failure.

Practice:

Aircraft emergencies.
 Previously introduced flight procedures.
 Normal cockpit procedures.

Performance Standards. IAW CH-53 NATOPS and FRS
 Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. WST/APT.

SFAM-104

1.0

S

Goal. Introduce gearbox malfunctions. Introduce basic ACT concept. Practice previously introduced emergency and flight

procedures.

Requirement

Introduce:

Engine chip detector light.
Control linkage failure.
Power deterioration.
Engine oil pressure high caution light, high oil temperature, engine oil quantity low.
Nose gearbox chip detector light/failure.
Accessory gearbox oil system failure.
Accessory gearbox chip detector light/failure.
Main gearbox oil system failures.
Main gearbox chip locator light/failure.
Power train failures.
Tail rotor drive system failure, tail rotor gearbox or intermediate gearbox failure, and tail rotor or intermediate gearbox chip detector light.

Practice:

Previously introduced emergencies.
Flight procedures.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. WST/APT.

SFAM-105

1.5

C,R,H S

Goal. Introduce communication skills IAW ACT techniques. Practice all ground, flight, and aircraft emergency procedures.

Requirement

Introduce:

Obstacle takeoff and approach.
Smoke and fume elimination.
AFCS computer malfunctions/mode failures (53E), total AFCS failure.
BIM/Blade Pressure caution light (in-flight).
Approach and landing with tail rotor control system failure.
Tail rotor tandem servo malfunction.
Fuel filter bypass light.
Hydraulic fire in main rotor pylon.
Use of AN/ARN 151 GPS system.
Sender/receiver responsibilities and overcoming communication barriers. Discuss ICS switchology and techniques, visual and standard terminology.

Practice:

Ground, flight, and aircraft emergency procedures.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. WST/APT.

SFAM-106

1.0 C,R,H S

Goal. Conduct Progress Check. Introduce communication skills IAW ACT techniques.

Requirement

Introduce:

- Ground resonance procedure.
- Power settling (vortex ring state).
- Settling with power.
- Dynamic rollover.
- Electrical fire.
- Alternating/Direct current system failures.
- Rotor damper failure.
- Lightning strike.
- Most conservative response rule, the two-challenge rule, and task saturation with compound emergencies.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. WST/APT.

SFAM-107

1.0 S

Goal. Introduce NS adaptation.

Requirement

Introduce:

- NVD set-up/operation.
- Cockpit lighting.
- Blind cockpit drills.
- NVD malfunctions.
- FLIR system and operation (53E).
- NVD goggle/degoggle procedures.
- NVD scan techniques.
- Basic FAM pattern and approaches utilizing NVDs.
- Emergencies while wearing NVDs.
- NVD failure.
- FLIR operation and utilization (53E).

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. NITE lab.

Ordinance. N/A.

External Syllabus Support. WST/APT.

FAM-110

1.5 C,H 1 CH-53

Goal. Introduce start, normal ground, and flight procedures including low work and normal approaches.

Requirement

Discuss:

- Fuel management.
- Fuel dump system/procedures and auxiliary fuel tank jettison system/parameters.
- Fuel supply system, fuel transfer system, fuel purge system (53E), and pressure refueling system.

Introduce:

- Normal cockpit procedures.
- Starting procedures.
- Radio procedures.
- Taxiing.
- Vertical takeoffs and landings.
- Transition to forward flight.
- Operation of engine trim switches.
- Normal approaches to a hover.
- Ramp operation.
- Shutdown procedures.
- Conduct an area familiarization and local course rules flight.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. Preflight walk-around, Egress and local course rules exam.

Ordinance. N/A.

External Syllabus Support. N/A.

FAM-111

1.5 C 1 CH-53

Goal. Introduce precision hover/low work. Practice start, normal ground, and previously introduced flight procedures.

Requirement

Discuss:

- Engine restart in-flight.

Blade and pylon fold.
 Utility hoist procedures (53E).
 Effects of pilot induced oscillations (PIO).
 Exhaust gas re-ingestion (53E).
 Effects of high AOB maneuvering and subsequent aircraft response.
 No 2 engine dual thermal detection system (53E).
 No 2 engine over-heat caution light in flight (53E).
 Engine start/ignition system.
 Hot start, hung start.
 AOB limitations.
 Emergency shutdown procedures.

Demonstrate:

High AOB maneuvers.

Introduce:

Square patterns/turns on the spot.
 Precision (stable) hover.
 Air taxi.
 Single engine and/or dual engine flight characteristics at altitude.

Practice:

Start procedures.
 Normal ground procedures.
 Previously introduced flight procedures.

Performance Standards. IAW CH-53 NATOPS and FRS
 Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

FAM-112

1.5

C 1 CH-53

Goal. Introduce engine failure(s) at altitude, running takeoffs and landings, precision approaches, and practice autorotations.

Requirement

Discuss:

Engine system/limitations.
 Engine overspeed/Nf flex shaft failure.
 Compressor stall.
 Engine power loss.
 Engine high/low oil pressure.
 Engine high oil temperature.
 Engine chip detector light.
 Control linkage failure.
 Effects of gross weight on single and/or dual engine performance.
 Engine shutdown in flight/fuel siphoning.

Engine restart in flight.

Introduce:

Simulated single and/or dual engine failure at altitude.
Running takeoffs and landings.
Precision approaches to a hover.
Autorotations with power recovery.

Practice:

Cockpit procedures.
Hover/low work.
Previously introduced FAM maneuvers.

Performance Standards. IAW CH-53 NATOPS and FRS
Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

FAM-113

1.5

1 CH-53

Goal. Introduce no hover landings. Practice previously introduced FAM maneuvers and simulated emergency procedures.

Requirement

Discuss:

The effects of aircraft gross weight on single and/or dual engine performance capability.
Single/dual engine wave-off.
Fire detection/extinguishing system.
Engine compartment fire on the ground.
Engine compartment fires in flight.
APP or cabin heater fire.
Fuselage fire.
Hydraulic fire in main rotor pylon.
Engine post shutdown fire.
Electrical fire.
Smoke and fume elimination.
Fire during ground refueling.

Introduce:

No hover landings.
Single and/or dual engine wave-offs.
Simulated single and/or dual engine failure during takeoff.
Simulated single and/or dual engine approaches and landings (running and to a spot).
Simulated single and/or dual engine failure above 50 feet AGL.

Practice:

Previously introduced FAM maneuvers.
Simulated emergency procedures.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

FAM-114

1.5 C,R,H 1 CH-53

Goal. Introduce simulated partial/total AFCS failure. Practice FAM and previously introduced simulated emergency procedures.

Requirement

Discuss:

- AFCS system/functions.
- Inner/outer loop (53E).
- AFCS servo functions.
- AFCS servo hardover.
- Longitudinal bias actuator (53E).
- FAS functions (53E).
- Trim functions.
- Desensitizer failure (53E).
- AFCS computer malfunctions/mode failures.
- Total AFCS failure.
- Ground resonance.

Introduce:

- Obstacle takeoff, approach.
- Partial/total AFCS failure.

Practice:

- Previously introduced FAM maneuvers.
- Simulated emergency procedures.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

FAM-115

1.5 1 CH-53

Goal. Introduce high AOB maneuvers. Practice all FAM and simulated emergency procedures.

Requirement

Discuss:

- BIM/IBIS blade systems.
- BIM/Blade pressure caution light in flight.

Flight control system.
 Control couplings.
 Damper system/failure.
 Primary tandem servos operation/malfunction.
 Approach and landing with a tail rotor control system malfunction.

Introduce:
 High AOB maneuvers.

Practice:
 All FAM maneuvers.
 Simulated emergency procedures.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

FAM-116

1.5 C,R,H 1 CH-53

Goal. Practice all FAM maneuvers, and simulated emergency procedures.

Requirement

Discuss:

Transmission system/limitations.
 Chip detection system.
 Nose gearbox chip location light.
 Nose gearbox failure.
 Accessory gearbox oil system failure.
 Accessory gearbox chip locator light.
 Accessory gearbox failure.
 Main gearbox chip locator light.
 Main gearbox oil system failure.
 Loss of main gearbox lubrication.
 Power train failure.
 Tail rotor or intermediate gearbox chip detector light.
 Tail rotor gearbox or intermediate gearbox failure.
 Tail rotor drive system failure.
 Pylon unsafe for flight light.

Practice:
 All FAM maneuvers.
 Simulated emergency procedures.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

<u>FAM-117</u>	<u>External Syllabus Support.</u> N/A. <u>1.5</u> <u>1 CH-53</u>
	<u>Goal.</u> Practice all FAM maneuvers and simulated emergency procedures. CH-53 NATOPS.
	<u>Requirement</u>
	<u>Discuss:</u>
	Rotor brake system. APP. Hydraulic power supply systems. Hydraulic power supply system failures. Utility hydraulic subsystems.
	<u>Practice:</u>
	All FAM maneuvers. Simulated emergency procedures.
	<u>Performance Standards.</u> IAW CH-53 NATOPS and FRS Standardization Manual.
	<u>Prerequisites.</u> N/A.
	<u>Ordinance.</u> N/A.
	<u>External Syllabus Support.</u> N/A.
<u>FAM-118</u>	<u>1.5</u> <u>C,R,H 1 CH-53</u>
	<u>Goal.</u> Review all FAM maneuvers and simulated emergency procedures.
	<u>Requirement</u>
	<u>Discuss:</u>
	Ground cushion and ground effect. Effect of wind on translational lift. Effect of temperature and pressure altitude on power available. Power required for flight at various airspeeds (hover to V _{MAX}). Effects of gross weight, altitude, temperature, turbulence, and wind on power required for hover both in and out of ground effect. Effects of gross weight, altitude, temperature, and turbulence on blade stall. Maximum speed level flight with turns for existing ambient conditions. Conditions leading to power settling and settling with power. Landing gear system. Landing gear system failure. Bearing Monitor System (53E). Bearing VIB or TEMP DETECT and LIMIT (53E). BMS fault isolation (53E).

Practice:

All FAM maneuvers.
Simulated emergency procedures.

Performance Standards. IAW CH-53 NATOPS and FRS
Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

FAM-1191.51 CH-53

Goal. Conduct Progress check.

RequirementPractice:

All FAM maneuvers.
Simulated emergency procedures.

Performance Standards. Demonstrate proficiency of FAM
maneuvers IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. CH-53 NATOPS open book exam.

Ordinance. N/A.

External Syllabus Support. N/A.

FAM-1201.5C,R,H 1 CH-53 N

Goal. Introduce FAM maneuvers at night.

RequirementDiscuss:

Aircraft lighting systems.
Electrical failures.
Electrical power supply system.
Single and multiple generator failure.
Single and dual rectifier failure.
Minimum aircraft equipment required for night flight.

Introduce:

Normal procedures and maneuvers under conditions of
darkness at a lit airfield.
Night basic airwork, low work, and landings with various
light configurations.
Tip path plane awareness.
HNVS operation (53E).

Performance Standards. IAW CH-53 NATOPS and FRS
Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

FAM-121

1.5 C 1 CH-53 N NS

Goal. Introduce NVD low work and pattern work.

Requirement

Discuss:

- NVD operations/failures.
- Cockpit lighting.
- Crew coordination.
- Comfort level.
- Low altitude emergencies
- Inadvertent IMC procedures.
- Aircraft external lighting.
- NVD visual characteristics and limitations.
- Scan techniques.

Introduce:

- Use of NVDs while performing taxi, basic low work, hover, and vertical takeoffs/landings at an unlit field or packed surface.

Performance Standards. IAW CH-53 NATOPS, FRS Standardization Manual, and MAWTS-1 NVD manual.

Prerequisites. The Night Imaging and Threat Evaluation (NITE) Lab syllabus. FAM-120.

Ordinance. N/A.

External Syllabus Support. N/A.

FAM-122

1.5 C,R,H 1 CH-53 N NS

Goal. Practice low work, takeoffs/landings and pattern work while using NVDs.

Requirement

Discuss:

- Solar Lunar Almanac Program (SLAP).
- Light Interference Filters (LIFS).
- Effects of shadowing on NVD operations.
- Effects of atmospheric conditions on NVD performance.
- Blooming/de-gaining.
- Approach pattern.
- External aircraft lighting.
- Spectrum viewed by NVDs (FLIR/NVDs).

Practice:

- Use of NVDs while performing taxi, basic low work, hover,

and vertical takeoffs/landings at an unlit field or packed surface.

Performance Standards. IAW CH-53 NATOPS, FRS Standardization Manual, and MAWTS-1 NVD manual.

Prerequisites. FAM-121.

Ordinance. N/A.

External Syllabus Support. N/A.

2. Instruments (INST)

a. Purpose. To develop proficiency in instrument flight procedures while using all installed navigation aids.

b. General

(1) All instrument stage flights should terminate with an instrument approach, when possible.

(2) Pilots may use the simulator for any instrument flight requirement; however, they may use it for no more than 50 percent of the total instrument syllabus requirements. The simulator will not satisfy the OPNAV night minimums requirement.

c. Crew Requirement. IP/RAC/CC (AO required for NVD events).

d. Simulator Training. (5 Events, 5.0 Hours).

e. Flight Training. (4 Flights, 6.0 Hours).

SINST-130

1.0

S

Goal. Introduce basic instruments, TACAN approaches, and decision making IAW ACT techniques.

Requirement

Introduce:

Instrument flight checklist.

Instrument takeoff.

Level speed change.

Standard rate timed turns.

Vertical S-1 pattern.

Oscar pattern.

Turn pattern.

TACAN approach.

Point-to-point navigation.

Holding.

Decision making in the CH-53 IAW ACT techniques.

Troubleshooting strategies for degraded aircraft systems in IMC.

Performance Standards. IAW CH-53 NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. WST/APT.

SINST-131

1.0 C,R,H S

Goal. Introduce partial panel flight, VOR/ADF procedures and adaptability/flexibility IAW ACT techniques.

Requirement

Introduce:

Partial panel flight.
VOR/ADF approach.
Holding.
Adaptability/flexibility in the CH-53 IAW
ACT techniques.

Discuss:

Changes in mission from the briefing, crew-member incapacitation, and overcoming personality differences within the cockpit and cabin.

Practice:

TACAN procedures.

Performance Standards. IAW CH-53 NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. WST/APT.

SINST-132

1.0 C,R,H S

Goal. Introduce ILS/localizer approaches (53E) and mission analysis IAW ACT techniques. Practice TACAN/ADF approaches (53D). Practice aircraft emergency procedures for both types of aircraft.

Requirement

Introduce:

ILS (53E), and localizer approaches (53E).
Mission analysis in the CH-53 IAW ACT
techniques.

Discuss:

The three stages of mission analysis, and standardized procedures.

Practice:

TACAN and VOR approaches (53D).
Previously introduced emergency procedures.

Performance Standards. IAW CH-53 NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. WST/APT.

SINST-1331.0S

Goal. Introduce unusual attitudes and recovery procedures, PAR, ASR approaches and situational awareness considerations in the CH-53 IAW ACT techniques. Practice aircraft emergency procedures.

RequirementIntroduce:

Unusual attitudes and recovery procedures.
PAR and ASR approaches.
Situational awareness considerations in the CH-53 in accordance with ACT techniques.
Task fixation during an instrument approach with an emergency or degraded system.

Practice:

Aircraft emergency procedures.

Performance Standards. IAW CH-53 NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. ACT/APT.

SINST-1341.0S

Goal. Introduce radio failure, ATC procedures in IMC conditions and leadership principles IAW ACT techniques.

RequirementIntroduce:

HF Radio.
IFR departure.
COMM/NAV failure under IMC.
Single and/or dual engine missed approach.
IFR canned route (Flight planning).
Leadership principles in the CH-53 IAW ACT techniques.

Command authority, crewmember relationships in the cockpit and cabin, and division of tasks.

Performance Standards. IAW CH-53 NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. WST/APT.

INST-135

1.5 A/S 1 CH-53 (N)(NS)

Goal. Introduce basic instrument procedures and instrument coordination patterns.

Requirement

Introduce:

- Instrument checklist.
- Instrument takeoff (ITO).
- Attitude instrument flying.
- Standard rate/half standard rate turns. Recovery from unusual attitudes.
- Vertical S-1.
- Oscar patterns.
- Partial panel.
- AFCS failure.
- Inadvertent entry into IFR conditions.
- Lost plane procedures.
- Lightning strike.
- Emergency descent.

Performance Standards. IAW CH-53 NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

INST-136

1.5 C,R,H A/S 1 CH-53 (N)(NS)

Goal. Introduce ADF, VOR (53E), and TACAN procedures.

Requirement

Discuss:

- Approach minimums and helicopter-only approaches.

Introduce:

- Time-distance checks.
- ADF procedures.
- Operation of the transponder modes.
- VOR procedures.

TACAN procedures.
Point-to-point navigation.

Performance Standards. IAW CH-53 NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

INST-137

1.5 C,R,H A/S 1 CH-53 (N)(NS)

Goal. Introduce precision approaches.

Requirement

Discuss:

BDHI/course indicator switches.
ILS/LOC and LOC back course approaches (53E).

Introduce:

LOC/ILS procedures (53E).
PAR procedures.

Performance Standards. IAW CH-53 NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

INST-138

1.5 C A/S 1 CH-53 (N)(NS)

Goal. Conduct IFR flight to an outlying airfield. Instrument progress check.

Requirement. Plan, file, brief, and fly an IFR flight away from home field.

Discuss:

Range performance charts in the CH-53 NATOPS Manual.

Performance Standards. IAW CH-53 NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

3. Navigation (NAV)

a. Purpose. To navigate without radio navigational aids and identify positions by using charts and maps.

b. Crew Requirement. 141: IP/RAC/CC.
142: IP/RAC/CC/AO.

c. Ground Training. N-PFPS flight planning, GPS course as required by FRS.

d. Simulator Training. (1 Period, 1.0 Hour).

e. Flight Training. (2 Flights, 4.0 Hours).

SNAV-1401.0S

Goal. Introduce use of N-PFPS, GPS and HNVS.

Requirement. Utilize N-PFPS to develop a route card for GPS programming to a minimum of six waypoints.

Discuss:

GPS set-up, programming, operation, and use.

Introduce:

Use of Global Positioning System (GPS) and HNVS operation (53E).

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. WST/APT.

NAV-1412.01 CH-53

Goal. Introduce visual and GPS navigation.

Requirement. While using 1:250,000 and 1:50,000 maps, plan a navigation flight to a minimum of six terrain features using N-PFPS for planning. Pilots should conduct this flight between 200 and 500 feet AGL.

Discuss:

Navigation techniques.

Map preparation.

Checkpoint selection.

Boundaries/limiting features.

Wind correction in navigation.

Chart Update Manual (CHUM).

Portable Flight Planning Software (N-PFPS).
GPS operation/use.

Introduce:

In-flight route changes.
Use of Global Positioning System (GPS).

Performance Standards. IAW CH-53 NATOPS and FRS
Standardization Manual.

Prerequisites. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

NAV-142

2.0

1 CH-53 N NS

Goal. Practice NVD navigation. Incorporate the use of N-PFPS
and GPS.

Requirement. Plan and navigate to a minimum of six
predetermined check points while using 1:250,000 and 1:50,000
scale maps.

Discuss:

Use of the FLIR (53E).
Low level hazards.
Stress map interpretation.
Dead reckoning techniques.

Practice:

Use of GPS and N-PFPS.

Performance Standards. IAW CH-53 NATOPS, MAWTS-1 NVD Manual
and FRS Standardization Manual.

Prerequisites. FAM-122.

Ordinance. N/A.

External Syllabus Support. N/A.

4. Formation (FORM)

a. Purpose. To develop parade and cruise formation principles and
techniques.

b. Crew Requirement. 151: IP/RAC/CC.
152: IP/RAC/CC/AO.

c. Simulator Training. (1 Period, 1.0 Hour).

d. Flight Training. (2 Flights, 3.0 Hours).

SFORM-1501.0 C,R,H SGoal. Introduce day/night formation principles.RequirementDiscuss:

Aircraft lighting, closure rate, recovery from unusual attitudes, aircrew coordination, and comfort level.

Introduce:

Day and NVD takeoffs, cruise principles, crossovers, and section approaches.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. WST/APT.

FORM-1511.5 C,R,H 2 CH-53

Goal. Introduce parade, cruise formation and section landings.

RequirementDiscuss:

Visual checkpoints for formation position.
Formation considerations.
Parade and Cruise formations.
Cruise turn principles.
Loss of visual contact.
Break-up and rendezvous.
Over-run procedures.

Introduce:

Section takeoffs, parade position, crossovers, breakups, rendezvous, lead changes, landings, cruise formations, and IMC break-up.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisite. CAL-161 if conducted to a CAL site.

Ordinance. N/A.

External Syllabus Support. N/A.

FORM-1521.5 2 CH-53 N NS

Goal. Introduce NVD formation procedures and section

landings.

Requirement

Discuss:

Aircraft lighting.
Closure rate.
Aircrew coordination and comfort level.
NVD visual checkpoints for formation position.

Introduce:

Night section takeoffs.
Cruise principles.
Crossover.
Lead changes
Section landings.

Performance Standards. IAW CH-53 NATOPS, MAWTS-1 NVD Manual and FRS Standardization Manual.

Prerequisite. FAM-122, FORM-151. (CAL-163 if FORM-152 is conducted to a CAL site)

Ordinance. N/A.

External Syllabus Support. N/A.

5. Confined Area Landings (CAL)

- a. Purpose. Develop takeoff and landing skills in confined areas.
- b. Crew Requirement. 161/162: IP/RAC/CC.
163: IP/RAC/CC/AO.
- c. Simulator Training. (1 Period 1.0 Hour).
- d. Flight Training. (3 Flights, 5.0 Hours).

SCAL-160 1.0 S NS

Goal. Introduce night systems CAL approaches.

Requirement

Discuss:

Instrument scan requirements.
Crew coordination.

Performance Standards. IAW CH-53 NATOPS, MAWTS-1 NVD Manual and FRS Standardization Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. WST/APT.

CAL-161 1.5 C,R,H 1 CH-53

Goal. Practice precision approaches and introduce their application to CALs.

RequirementDiscuss:

Landing gear system/limitations.
 Dynamic rollover.
 Slope landing technique/limitations.
 Loss of visual reference during landing.
 Power settling.
 Settling with power.
 Main and tail rotor clearance factors over sloping or uneven terrain.
 LZ considerations.

Practice:

Precision approaches to confined areas.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

CAL-162 1.5 2 CH-53

Goal. Introduce section CAL approaches and landings.

RequirementDiscuss:

Hazards associated with section CAL landings.
 Aircrew coordination.

Introduce:

Day Section CAL approaches and landings.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisite. CAL-161 and FORM-151. CAL-162 may be flown in conjunction with FORM-151.

Ordinance. N/A.

External Syllabus Support. N/A

CAL-163 2.0 1 CH-53 N NS

Goal. Introduce NVD confined area landings.

RequirementDiscuss:

Precision obstacle approaches.
 Aircrew coordination/comfort level.
 Aircraft lighting.

Practice:

Night CAL approaches and takeoffs with NVDs.

Performance Standards. IAW CH-53 NATOPS and FRS
 Standardization Manual.

Prerequisite. FAM-122 and CAL-161.

Ordinance. N/A.

External Syllabus Support. N/A.

6. External Loads (EXT)

- a. Purpose. To develop skills necessary for external cargo operations.
- b. General. Prior to EXT-170, refer to operational and safety considerations discussed in the appropriate NATOPS Flight Manual and External Air Transport Message. Discuss and become familiar with all aspects of aircrew coordination applicable to external operations as described in the appropriate CH-53 NATOPS Flight Manual.
- c. Crew Requirement. IP/RAC/CC/AO.
- d. External Syllabus Support. Helicopter Support Team (HST).
- e. Flight Training. (4 Flights, 5.0 Hours).

EXT-170 1.0 C,H 1 CH-53

Goal. Introduce Single point external cargo operations.

RequirementDiscuss:

Precision hover.
 Flight envelopes with external loads.
 Weight and balance calculations.
 Power settling/settling with power.
 Operational power checks.
 Single point performance checks.
 Single point suspension system/operations.
 Cargo pickup and delivery procedures.
 Power available/required considerations.
 Cargo release modes.
 Cargo jettison procedures.
 Hook open advisory light in flight.
 DSEN failure.

Introduce:

Cargo pickup and release procedures.
 Aircrew coordination.
 Voice signals/standardized terminology.
 Perform five hookups and releases, or until proficiency is demonstrated.

Performance Standards. IAW CH-53 NATOPS, External Air Transport Message and FRS Standardization Manual.

Prerequisite. CAL-161.

Ordinance. N/A.

External Syllabus Support. HST.

EXT-171 1.0 C,H 1 CH-53 N NS

Goal. Introduce Single point external cargo operations utilizing NVDs.

Requirement

Discuss:

Aircrew coordination.
 Comfort level.
 NVD scan techniques.
 Aircraft emergencies.
 Cargo jettison procedures.
 Power requirements.
 Aircraft lighting.
 Landing zone markings.

Introduce:

External cargo pickup and delivery utilizing NVDs.
 Perform five hookups and releases, or until proficiency is demonstrated.

Performance Standards. IAW CH-53 NATOPS, External Air Transport Message and FRS Standardization Manual.

Prerequisite. EXT-170.

Ordinance. N/A.

External Syllabus Support. HST.

EXT-172 1.5 C,R,H 1 CH-53

Goal. Introduce Dual point procedures in the 53E. Review external cargo operations in the 53D.

Requirement

Discuss:

Dual point suspension system (53E).
 Dual point suspension system operations/limitations (53E).
 Aircrew coordination.

Emergencies encountered during external operations.
 Forward/Aft hook open advisory light in flight.
 Pilot induced/assisted oscillations.
 Cargo jettison.
 CG load indicator system (53E).

Introduce:

Perform five hookups and releases, or until proficiency is demonstrated.

Performance Standards. IAW CH-53 NATOPS, External Air Transport Message and FRS Standardization Manual.

Prerequisite. CAL-161.

Ordinance. N/A.

External Syllabus Support. HST.

EXT-173

1.5 C,R,H 1 CH-53 N NS

Goal. Introduce Dual point procedures at night utilizing NVDs (53E). Review external cargo operations at night (53D).

Requirement

Discuss:

NVD considerations.
 Aircrew coordination
 Comfort level.
 Scan techniques.
 Aircraft emergencies.
 Cargo jettison procedures.
 Aircraft lighting.
 Landing zone markings.

Introduce:

External cargo pickup and release procedures utilizing NVDs.

Performance Standards. Perform five hookups and releases or until proficiency is demonstrated IAW CH-53 NATOPS, External Air Transport Message and FRS Standardization Manual.

Prerequisite. EXT-171 (53D). EXT-172 (53E).

Ordinance. N/A.

External Syllabus Support. HST.

7. Terrain Flight (TERF)

a. Purpose. To introduce skills necessary to perform TERF maneuvers safely. Emphasize the importance of crew coordination, comfort level, and standard terminology.

b. General

(1) T&R Manual, Administrative requires a designated TERF instructor for all initial TERF flights.

(2) CH-53 TAC Manual contains all maneuver descriptions, and the current MAWTS-1 Helicopter Academic Support Package explains all maneuvers. The MAWTS-1 Academic Support Package contains the prerequisite academic lectures that support the TERF stages.

(3) T&R Manual, Administrative establishes all currency requirements/TERF altitude and airspeed limitations.

(4) The RAC shall complete academic training prior to commencing the TERF flight syllabus.

c. Crew Requirement. IP/RAC/CC/AO.

d. Ground Training. Pilots shall complete "Terrain Flight Introduction" in the MAWTS-1 Academic Support Package prior to the flight.

f. Flight Training. (2 Flights, 3.0 Hours)TERF-1801.5C,R,H 1 CH-53

Goal. Introduce TERF maneuvers. Demonstrate TERF navigation.

RequirementDiscuss:

TERF maneuvers.
 Aircrew coordination.
 Comfort level.
 Reduced reaction time.
 Emergency procedures at low altitudes.
 Climb-to-cope.
 Standardized terminology.
 Common mistakes.
 Hazard maps.
 Currency requirements.
 Blade walk-around.

Introduce:

Operational power checks.
 Masking and unmasking.
 TERF turns.
 Rolls, bunts.
 Quick stops.
 Low level/contour profiles.
 Using a 1:50,000 scale map, demonstrate TERF navigation.

Performance Standards. IAW CH-53 NATOPS, CH53 Tactical Manual, and FRS Standardization Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

TERF-181

1.5

1 CH-53

Goal. Introduce TERF navigation. Practice TERF maneuvers.

Requirement

Discuss:

Aircrew coordination.
Comfort levels.
Common terms.
Obstacle clearance.
Low altitude emergencies.

Practice:

TERF maneuvers and contour profile navigation.

Performance Standards. IAW CH-53 NATOPS, CH-53 TAC Manual and FRS Standardization Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

8. Review (REV)

a. Purpose. To demonstrate proficiency in performing duties as a combat capable copilot per CH-53 NATOPS and appropriate publications.

b. Crew Requirement. IP/RAC/CC.

c. Ground Training. RACs should complete CH-53 NATOPS closed book examination prior to the flight.

d. Flight Training. (1 Flight, 1.5 Hours).

REV-190

1.5

C,R,H 1 CH-53

Goal. Review combat capable training.

Requirement

Practice:

All FAM stage maneuvers.
Instrument stage maneuvers.
Confined area landings.
External cargo procedures.
If possible, formation flight.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual. RAC is responsible for all emergency procedures in the NATOPS Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

9. Combat Capable Pilot Check (CCX)

a. Purpose. To demonstrate proficiency in performing the duties as a combat capable copilot per CH-53 NATOPS and appropriate publications.

b. General

(1) The RAC is responsible for all maneuvers and emergency procedures in the combat capable phase.

(2) A CH-53 NATOPS qualified instructor shall evaluate this flight.

c. Crew Requirement. IP/RAC/CC.

d. Ground Training. Per the CH-53 NATOPS Flight Manual and OPNAVINST 3710.7, all RACs shall successfully complete an open and closed book test prior to combat capable pilot check. Upon completion of this flight, the RAC will be CH-53 NATOPS qualified in model as a Helicopter 2nd Pilot (H2P).

e. Flight Training. (1 Flight, 2.0 Hours).

CCX-191

2.0

C,R,H E 1 CH-53

Goal. Evaluate systems knowledge of the CH-53 and the capability to perform maneuvers in the combat capable phase, including high AOB maneuvers.

Requirement

Practice:

Evaluate systems knowledge of the CH-53 to include external lift systems.

Brief and demonstrate proficiency of all aircraft emergency procedures per the CH-53 NATOPS Flight Manual.

Demonstrate proficiency and the capability to perform in the combat capable phase to include takeoffs, approaches, instrument procedures, emergency procedures, CALs, high AOB maneuvers, and landings.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisite. Open and Closed book NATOPS exams.

Ordinance. N/A.

External Syllabus Support. N/A.

132. COMBAT READY PHASE. Pilots undergoing instruction in this level must have completed the MAWTS-1 Course Catalog Academic Support Package lectures applicable to this phase of training prior to conducting night systems flights. Night Systems rules of conduct will be per T&R Manual, Administrative. Pilots shall fly all night systems events in this level under ambient light conditions of .0022 LUX or greater except FCLP-273. A PUI is NSQ HLL (qualified to transport troops in HLL conditions) when the following flights have been completed: FORM-211, CAL-222, CAL-223, *CAL-224 (*ONLY REQUIRED TO CARRY TROOPS WHILE UTILIZING ANVIS HUD) TERF-232, TERF-233, and TAC-291. An NSI is required for all initial qualification for the following events: FORM-211, CAL-222, CAL-223, CAL-224, TERF-232, TERF-233, EXT-242, EXT-243, FCLP-273, and TAC-291. Re-qualification may be obtained by flying the "R" coded events with an NSI. FCLP-273 may be flown in HLL conditions without an NSI if both pilots are NSQ HLL and one pilot is FCLP-273 proficient. FCLP-273 may be flown in LLL conditions without an NSI if both pilots are NSQ LLL and one pilot is FCLP-273 proficient.

1. Familiarization/Instruments (FAM)

a. Purpose. To review day and night familiarization maneuvers, navigation procedures, and basic instrument procedures.

b. General

(1) Pilots will find familiarization maneuver descriptions in the NATOPS Manual.

(2) The NATOPS Instrument Flight Manual defines basic instrument procedures. All instrument stage flights should terminate with an instrument approach when possible.

c. Crew Requirement. P/P/CC.

d. Simulator Training. (1 Period, 1.5 Hours).

e. Flight Training. (1 Flight, 1.5 Hours).

SFAM/HNVS/INST-200 1.5 C,R,H S

Goal. Review the operational capabilities of the HNVS, NVD, HUD, and instrument systems in the CH-53E.

Requirement

Conduct:

Precision and non-precision approaches.

Fly a preplanned route utilizing the HNVS and HUD for landing zone identification, navigation, and hazard detection.

Practice HNVS and HUD operation, symbology, image optimization and crew coordination.

Performance Standards. IAW Instrument NATOPS/Flight procedures and MAWTS-1 NVD Manual.

Prerequisite. Completion of NITE Lab.

Ordinance. N/A.

External Syllabus Support. WST/APT.

FAM/INST-201 1.5 C 1 CH-53 A/S (N)

Goal. Practice day and night FAM maneuvers, navigation above 200' AGL, and basic instrument procedures.

Requirement

Review:

Basic airwork.
Instrument procedures.
PFPS planning.

Discuss:

FAM maneuvers.

Conduct:

Fly an instrument route. Include turn patterns, vertical S-1 patterns, Oscar patterns, and partial panel flight. Include non-precision approaches, precision approaches, and filing procedures as appropriate. If flown at night, discuss night lighting and use, night scan, and fixation.

Performance Standards. IAW NATOPS/Instrument flight manuals.

Prerequisite. None.

Ordinance. N/A.

External Syllabus Support. None.

2. Formation (FORM)

a. Purpose. To review formation and introduce tactical formation maneuvering.

b. General

(1) Pilots may find a description of these maneuvers and formations in CH-53 TAC Manual, the MAWTS-1 Academic Support Package and the MAWTS-1 DM Guide.

(2) Read paragraph 132.

c. Crew Requirement. P/P/CC/AO.

d. Ground Training. Review tactical formation flight in CH-53 TAC Manual.

e. Flight Training. (2 Flights, 3.5 Hours).

FORM-210 1.5 C 2 CH-53

Goal. Practice day formation and introduce tactical formation maneuvering.

Requirement

Discuss:

- Aircrew coordination.
- Comfort level.
- Closure rates.
- Formation maneuvers.
- Cruise Turn principles.
- Recovery from unusual attitudes.
- High density altitude.
- High AOB turns/aerodynamics performance.
- Lead changes; include EMCON lead change.

Introduce:

- Break turns, center turns, pinch/dig, cover, tac turns, in-place turns, split turns, and cross turns.
- Combat spread and combat cruise formations.

Review:

- Parade position.
- Cruise principles.
- Crossovers.
- Lead changes.

Performance Standards. IAW CH-53 TAC Manual.

Prerequisite. None.

Ordinance. N/A.

External Syllabus Support. N/A.

FORM-211 2.0 C 2 CH-53 N NS

Goal. Practice night system formation flight and navigation.

Requirement

Discuss:

- Aircraft lighting.
- Night tactical formation.
- Closure rate.
- Recovery from unusual attitudes.
- Aircrew coordination.
- Comfort level.
- NVD emergencies.
- Inadvertent IMC.
- Dead reckoning techniques.
- Low level hazards.
- N-PFPS Mission Planning.
- HNVS considerations.

Introduce:

- NS formation flight.

NS navigation to include GPS and HNVS checkpoint identification.

Review:

Combat Spread/Combat Cruise Formation principles.

Conduct:

Navigate to a minimum of six predetermined man made or terrain features while using 1:250,000 and 1:50,000 scale maps. Minimum altitude 200 feet AGL.
Conduct at least one lead change.

Performance Standards. IAW CH-53 TAC Manual and MAWTS-1 NVD Manual.

Prerequisite. None.

Ordinance. N/A.

External Syllabus Support. None.

3. Confined Area Landings (CAL)

- a. Purpose. To conduct takeoffs and landings in confined/mountainous areas.
- b. General. Read paragraph 132.
- c. Crew Requirement. CAL-220,221: P/P/CC.
CAL-222,223,224: P/P/CC/AO.
- d. Flight Training. (5 Flights, 8.0 Hours).

CAL-220

1.5

C 1 CH-53

Goal. Practice CAL approaches and introduce tactical approaches to confined areas/mountainous terrain. Introduce simulated high gross weight conditions.

Requirement

Discuss:

Aircrew coordination.
Power settling.
Settling with power.
Low altitude emergencies.
Engine emergencies.
Obstacle clearance.
High gross weight takeoffs/landings.
Maneuvering at high gross weight/density altitude (GW/DA).
High AOB turns/aerodynamic performance.
HNVS capabilities and limitations.
LZ Diagram requirements.

Introduce:

LZ Diagrams.

CAL/MAL approaches.
HNVS operation.

Performance Standards. Fly CAL/MAL pattern at 300'/80 kts. Land within pre-designated area of zone. Recognize glide slope closure rate. Maintain safe obstacle clearance.

Prerequisite. None.

Ordinance. N/A.

External Syllabus Support. None.

CAL-221

1.5 C,R,H 2 CH-53

Goal. Introduce section CALs.

Requirement

Discuss:

Aircrew coordination.
Obstacle clearance.
Lead changes.
Tactical formations.
Reduced visibility section landings.
Cruise turn principles (radius of turn).

Introduce:

Section takeoffs, approaches, landings, emphasizing CALs/MALs.
Perform a minimum of four landings as lead and four landings as wingman.
Utilize cruise turn principles for turns into/away from wingman.

Review:

CAL 220 and FORM-210.
LZ diagrams.

Performance Standards. IAW CH-53 TAC Manual. Fly CAL/MAL pattern at 300'/80 kts. Land within briefed vicinity of lead aircraft.

Prerequisite. CAL-220 and FORM-210.

Ordinance. N/A.

External Syllabus Support. None.

CAL-222

1.5 C 1 CH-53 N NS

Goal. Introduce CALs/MALs utilizing NVDs, emphasizing low work.

Requirement

Discuss:

Aircrew coordination.

Landing zone Lighting.
 Cockpit lighting.
 Low altitude emergencies.
 NVD failures.
 Inadvertent IMC procedures.
 Landings with reduced visibility.
 Wave-offs.
 HNVS capabilities and limitations.
 Electro-Optic Tactical Decision Aid (EOTDA Data).
 Solar Lunar Almanac Program.

Introduce:

NVD CALs/MALs (minimum of five).

Review:

Low work.
 HNVS operations.
 CAL-220.

Performance Standards. Same as CAL-220.

Prerequisite. CAL-220.

Ordinance. N/A.

External Syllabus Support. None.

CAL-223

2.0 C,R,H 2 CH-53 N NS

Goal. Introduce NVD section CALs.

Requirement

Discuss:

Same as CAL-222.
 Lead changes.
 Tactical formations.
 Reduced visibility section landings.
 Cruise turn principles (radius of turn).

Introduce:

Section takeoffs, approaches, landings, using NVDs.
 Conduct at least one lead change.
 Perform a minimum of four landings as lead and four landings as wingman.
 Utilize cruise turn principles for turns into/away from wingman.

Review:

Form-211.
 LZ diagrams.

Performance Standards. Same as CAL-221.

Prerequisite. CAL-221, CAL-222, and FORM-211.

Ordinance. N/A.

External Syllabus Support. None.

CAL-224 1.5 C,R,H 1 CH-53 N NS

Goal. Introduce ANVIS-7 (HUD) and develop proficiency with CH-53 night systems to include HNVS and NVDs.

Requirement

Discuss:

Aircrew coordination utilizing night systems.
ANVIS-7 Heads-Up Display.
Operation.
Limitations.
Switchology.
Functionality/Image.
HNVS.

Introduce:

ANVIS-7 (HUD).
NVD Low Work with HUD.
NVD Pattern work with HUD.

Review:

Low work.
Pattern work CAL/MAL.
CAL-222.

Performance Standards. IAW MAWTS-1 NVD Manual. Same as CAL-222.

Prerequisite. CAL-222.

Ordinance. N/A.

External Syllabus Support. None.

4. Terrain Flight (TERF)

a. Purpose. To conduct TERF maneuvers/navigation and introduce section maneuvering in the day and night TERF environment.

b. General

(1) A TERF Instructor (TERFI) is required for all day TERF instructional flights and an NSI is required for all initial and re-qualification NVD TERF instructional flights. TERF rules of conduct per T&R Manual, Administrative.

(2) Read paragraph 132.

c. Crew Requirement. P/P/CC/AO.

d. Ground Training. Completion of MAWTS-1 Course Catalog Academic Support Package TERF lectures prior to commencing this stage of training.

e. Flight Training. (4 Flights, 7.0 Hours).

TERF-230 1.5 C 1 CH-53

Goal. Review TERF maneuvers and navigation.

Requirement

Discuss:

TERF maneuvers.
Operational power checks.
Comfort levels.
Aircrew coordination.
Common terminology.
Route and checkpoint selection.
Route planning tools (N-PFPS).
Orientation techniques.
Map Preparation.
Maneuvering at low altitude and high gross weight/high density altitude.
High AOB turns/aerodynamic performance.
Low altitude emergencies.
Aircraft performance charts.
Obstacle clearance.

Review:

Masking/unmasking.
Quick stop.
TERF turn and roll.
Bunts.
Low level and contour profiles.

Conduct:

Plan and fly a route to a minimum of six checkpoints at or below 200' AGL.
TERF navigation utilizing 1:250,000 and 1:50,000 scale maps as appropriate.
TERF maneuvers.

Performance Standards. Navigate and remain oriented within 500 meters enroute. Navigate and remain oriented within 200 meters of intended point of landing.

Prerequisite. None.

Ordinance. N/A.

External Syllabus Support. None.

TERF-231 1.5 C,R,H 2 CH-53

Goal. Introduce tactical formation TERF.

Requirement

Discuss:

Same items as in TERF-230, as it applies to section TERF concepts.
 Tactical flight considerations IAW CH-53 TAC Manual.
 Tactical formation maneuvers in a TERF environment IAW CH-53 TAC Manual.

Review:

Same as TERF-230 and FORM-210.

Conduct:

Plan and fly a route to a minimum of six checkpoints at or below 200' AGL.
 Incorporate tactical formation maneuvering in the navigation of the route.

Performance Standards. Navigate and remain oriented within 500 meters enroute. Navigate and remain oriented within 200 meters of intended point of landing.

Prerequisite. TERF-230 and FORM-210.

Ordinance. N/A.

External Syllabus Support. None.

TERF-232

2.0 C 1 CH-53 N NS

Goal. Introduce TERF navigation while using NVDs.

Requirement

Discuss:

Aircrew coordination.
 Comfort level.
 TERF navigation considerations while using NVDs.
 Map preparation and route cards.
 HNVS capabilities and limitations.

Introduce:

TERF navigation flight while using NVDs.

Review:

NVD CALs and TERF-230.
 HNVS operations.

Conduct:

Plan and fly a route to a minimum of six checkpoints at or below 200' AGL.
 Route minimum of 75 nm.
 Perform a minimum of five landings.

Performance Standards. Navigate and remain oriented within 500 meters enroute. Navigate and remain oriented within 200 meters of intended point of landing.

Prerequisite. CAL-222 and TERF-230.

Ordinance. N/A.

External Syllabus Support. None.

TERF-233 2.0 C,R,H 2 CH-53 N NS

Goal. Introduce Section TERF navigation and review section CALs while utilizing NVDs.

Requirement

Discuss:

Same as TERF-232.

Review:

CAL-223.

Conduct:

Plan and fly a route to a minimum of six checkpoints at or below 200' AGL.

Route minimum of 100 nm.

Conduct a minimum of one lead change.

Perform a minimum of three landings as lead and three as wingman.

Use both 1:250,000 and 1:50,000 maps.

Performance Standards. Navigate and remain oriented within 500 meters enroute. Navigate and remain oriented within 200 meters of intended point of landing.

Prerequisite. CAL-223 and TERF-232.

Ordinance. N/A.

External Syllabus Support. None.

5. External Loads (EXT)

a. Purpose. To develop skills necessary for external loads in confined areas and operating the aircraft near its maximum gross weight for the given ambient conditions.

b. General

(1) Review operational and safety considerations discussed in the appropriate NATOPS Flight Manual and MCRP 4-23E, Multi-Service Helicopter Sling Load Manual, External Air Transport Message. Heavy lift should be emphasized, i.e., operating the aircraft at or near its maximum gross weight for the given ambient conditions. EXT-240 shall be dual point for initial qualification (CH-53E). Re-qualification and subsequent flights may be either single or dual point.

(2) Read paragraph 132.

(3) EXT-242 and EXT-243 require an NSI for initial qualification and re-qualification unless both pilots are NSQ HLL and the HAC is EXT-242 and

EXT-243 proficient. Conduct initial flight in HLL conditions.

- c. Crew Requirement. P/P/CC/AO.
- d. External Syllabus Support. HST.
- e. Flight Training. (4 Flights, 6.0 Hours).

EXT-240 1.5 C,H 1 CH-53

Goal. Practice single point external lift procedures and introduce precision approach techniques for conducting external operations to a confined area.

Requirement

Discuss:

- Aircrew coordination.
- Comfort level.
- Preflight planning to include power computations, weight and balance considerations, and operational power checks.
- External load information/characteristics.
- Hook preflight/Hook checks.
- Fuel Dump procedures/Aux tank jettison.
- Form F.
- Power settling.
- Engine failure.
- Cargo jettison procedures.
- Inadvertent hook release.
- Pilot Induced Oscillations (PIO).
- HST operation and safety brief.
- Wave-off with the load.
- Reduced visibility conditions.
- Precision approach techniques.

Introduce:

Single point external operations to a confined area.

Review:

- External lift procedures.
- In-flight weight and power computations.

Conduct:

Five single point pickups and deliveries.

Performance Standards. Pickups and delivery performed within 10 meters of intended point of landing.

Prerequisite. CAL-220.

Ordinance. N/A.

External Syllabus Support. HST, single point loads.

EXT-241 1.5 C,R,H 1 CH-53

Goal. Practice dual point external lift procedures (53E) and introduce precision approach techniques for conducting external operations to a confined area.

Requirement

Discuss:

Same as EXT-240.

Introduce:

Dual point external operations to a confined area.

Review:

External lift procedures.

In-flight weight and power computations.

Conduct:

Five dual point pickups and deliveries.

Performance Standards

Pickups and deliveries performed within 10 meters of intended point of landing.

Prerequisite. CAL-220.

Ordinance. N/A.

External Syllabus Support. HST, dual point load.

EXT-242

1.5 C 1 CH-53 N NS

Goal. Introduce NS single point externals to a confined area.

Requirement

Discuss:

Aircrew coordination.

Comfort level.

Low altitude emergencies.

NVD failures.

Inadvertent IMC procedures.

Reduced visibility zones.

LZ lighting.

Pendant and load lighting.

Wave-offs.

Night external operation considerations.

HST operation and safety brief.

Aircraft characteristics when operating at or near MGW.

Precision approach techniques.

Introduce:

NVD single point externals to a confined area.

Review:

EXT-240 discussion items.

Conduct:

Five single point pickups and deliveries.

Performance Standards. Pickups and deliveries performed within 10 meters of intended point of landing.

Prerequisite. CAL-222 and EXT-240.

Ordinance. N/A.

External Syllabus Support. HST, single point load.

EXT-243 1.5 C,R,H 1 CH-53 N NS

Goal. Introduce NS dual point externals (53E) to a confined area.

Requirement

Discuss:

Same as EXT-241.

Introduce:

NVD dual point externals to a confined area.

Review:

EXT-241.

Conduct:

Five dual point pickups and deliveries.

Performance Standards. Pickups and deliveries performed within 10 meters of intended point of landing.

Prerequisite. CAL-222 and EXT-241.

Ordinance. N/A.

External Syllabus Support. HST, dual point load.

6. Defensive Measures (DM)

a. Purpose. To introduce skills for evading both enemy surface and air threats, incorporating EW/IR countermeasures in a low-to-medium threat environment.

b. General. Pilots shall conduct this stage in a simulator against ground-to-air and air-to-air threats. The use of an APR-39 trainer will prepare aircrew prior to the event. Pilots should use the threat simulators in conjunction with classroom instruction.

c. Crew Requirement. P/P.

d. Ground Training

(1) Pilots shall complete the MAWTS-1 academic syllabus for DM, as specified in the MAWTS-1 Course Catalog, prior to commencing the flight phase.

(2) Review applicable chapters of CH 53 TAC Manual for EW/IR countermeasures, ASE, and tactical formation maneuvering. Consult the AFTTP 3-1 for threat systems information.

e. Simulator Training. (1 Period, 1.5 Hours).

SDM-250

1.5

C,R,H S (NS)

Goal. Introduce the APR-39 Radar Warning System, AAR-47, ALE-39 operation and programming, and EW/IR countermeasures against AAA, IR and RADAR SAMs.

Requirement

Discuss:

Operations of the ALE-39, APR-39, ALQ-157, and AAR-47.

The strengths and weaknesses of each ASE system versus ground-to-air and air-to-air threats.

Aircrew coordination.

Different tactical EW/IR countermeasures (Mk-46, MJU-8 and MJU-27B flares; RR-129 and RR-144 chaff).

Tactical maneuvering to counter the threat.

Introduce:

Search, acquisition, track, and missile alert signals of all applicable threat systems on APR-39 and AAR-47.

Tactical maneuvering and ASE employment to counter the threat.

Performance Standards. IAW CH-53 TAC Manual.

Prerequisite. MAWTS-1 DM class.

Ordinance. N/A.

External Syllabus Support. WST/APT with APR-39, ALE-39 and AAR-47 installed.

7. Aerial Refueling (AR) (CH-53E)

a. Purpose. To introduce AR.

b. General. Discuss and become thoroughly familiar with all AR procedures and aspects of aircrew coordination as described in the CH-53E NATOPS Manual and the NATOPS Air Refueling Manual (NAVAIR 00-8-T-110).

c. Crew Requirement. P/P.

d. Ground Training. Pilots shall consult the MAWTS-1 Course Catalog for the recommended lectures in the Academic Support Package applicable to this stage of flight, in addition to the MAWTS-1 NVD Manual and CH-53 TAC Manual.

e. Simulator Training. (1 Period, 1.0 Hour).

SAR-260

1.0

C,R,H S (NS)

Goal. To introduce aerial refueling.

Requirement

Discuss:

Aircrew coordination.
 Comfort level.
 Rendezvous procedures, both VMC and IMC.
 Voice procedures
 Join-up procedures.
 Airspeeds/altitudes.
 Crossovers.
 Hose response/markings.
 Inadvertent disconnects.
 AR emergencies.
 Control inputs and tip path awareness.
 Blade stall.
 NATOPS AR envelope chart.

Introduce/Practice:

Rendezvous/join-up.
 Observation/pre-contact/contact/refuel/disconnect
 positions.
 Aircraft movement around the tanker.
 Post AR procedures.

Performance Standards. Demonstrate the ability to perform a successful join-up and movement to the observation position. Movement to a stable pre-contact, refueling and disconnect position.

Prerequisite. None.

Ordinance. N/A.

External Syllabus Support. WST/APT.

8. Field Carrier Landing Practice (FCLP)

a. Purpose. To prepare for day, night and NVD carrier landings.

b. General. Discuss and become familiar with all aspects of shipboard operations and aircrew coordination applicable to the carrier qualification stage as described in the appropriate CH-53 NATOPS flight manual, NWP-42, LHA/LHD NATOPS, and OPNAVINST 3710.7. Each flight requires a minimum of five takeoffs and landings, additional takeoffs and landings as required to demonstrate proficiency. FCLP-273 requires a designated NSI unless both pilots are NSQ HLL or NSQ LLL as appropriate for the ambient conditions.

c. Crew Requirement. FCLP-271: P/P/CC.
 FCLP-272, 273: P/P/CC/AO.

d. Ground Training. Review shipboard operations and CQ procedures contained in the appropriate NATOPS Flight Manual, NWP-42, LHA/LPH/LHD NATOPS, and OPNAVINST 3710.7 prior to commencing this stage of training.

e. Simulator Training. (1 Period, 1.0 Hour).

f. Flight Training. (3 Flights, 3.0 Hours).

SCQ-270 1.0 C,H S (NS)

Goal. Conduct day, night and NVD simulated shipboard flight operations.

Requirement

Discuss:

Aircrew coordination.
Terminology.
Shipboard day and night landing patterns.
Shipboard instrument procedure.
Shipboard emergency procedures.
Blade/pylon fold procedures.

Introduce:

The LHA, LHD, and LPD day and night VFR landing patterns.
Fly one TACAN and one CCA approach in IMC or night conditions.

Performance Standards. Conduct all communications with HDC and Tower. Execute proper cockpit switchology. Remain oriented around the landing pattern relative to the BRC.

Prerequisite. Shipboard qualification lecture.

Ordinance. N/A.

External Syllabus Support. WST/APT with ARG shipping program.

FCLP-271 1.0 C,H 1 CH-53

Goal. Conduct day FCLPs.

Requirement

Discuss:

Aircrew coordination.
Comfort level.
Wind envelopes.
LSE signals.
Deck procedures.
Communication procedures.

Introduce:

Day shipboard landing pattern.
Day shipboard landings.

Review:

Shipboard communications.
Cockpit switchology.
Aircrew coordination.

Performance Standards. Fly a suitable pattern relative to the BRC in order to arrive over the intended spot in a stable hover. Execute a smooth touchdown within safe limits of the spot.

Prerequisite. Shipboard qualification lecture.

Ordinance. N/A.

External Syllabus Support. Land based simulated ship deck spot.

FCLP-272

1.0 C,H 1 CH-53 N

Goal. Conduct night, unaided FCLPs.

Requirement

Discuss:

- Aircrew coordination.
- Comfort level.
- Scan techniques.
- Aircraft/deck lighting.

Introduce:

- Unaided, night shipboard landing pattern.
- Unaided, night shipboard landings.

Performance Standards. Successfully incorporate instrument scan techniques required to maintain orientation around the ship at night.

Prerequisite. FCLP-271.

Ordinance. N/A.

External Syllabus Support. Lit, land based, simulated ship deck spot.

FCLP-273

1.0 C,H 1 CH-53 N NS

Goal. Conduct NVD FCLPs.

Requirement

Discuss:

- Aircrew coordination.
- Comfort level.
- Scan techniques.
- NVD aircraft/deck lighting.
- NVD landing techniques.
- NVD emergencies.

Introduce:

- NVD shipboard landing pattern.
- NVD shipboard landings.

Performance Standards. Successfully incorporate the use of NVDS into the night shipboard environment.

Prerequisite. CAL-222 and FCLP-271.

Ordinance. N/A.

External Syllabus Support. NVD compatible, land based, simulated ship deck spot.

9. Aerial Gunnery (AG)

a. Purpose. To introduce and conduct day AG employment.

b. General. Discuss and become familiar with all aspects of AG as described in the MAWTS-1 Aerial Gunnery Manual, ASP Fundamentals of AG, the CH-53 TAC Manual, and appropriate NATOPS flight manual.

c. Crew Training. P/P/CC/AGO(AGUI, AGI).

d. Ground Training. None.

e. Flight Training. (1 Flight, 1.5 Hours).

AG-280

2.0

C,R,H 1 CH-53

Goal. Introduce XM-218 day weapons employment.

Requirement

Discuss:

XM-218 nomenclature, capabilities and limitations.

Types of ammunition and ballistic effects.

Safety considerations, malfunction procedures, jams, and hung ordnance procedures.

Range procedures and course rules.

Weapons conditions, fire control voice commands, and fire discipline.

Range estimation and target engagement procedures.

Discuss flight profiles and weapons engagement per the TAC manual.

Introduce:

Ordinance loading, weapons preflight and operations, and post-flight.

Implementation of fire control voice commands, and fire discipline.

Range estimation and target engagement.

Flight profiles and weapons engagement per the TAC Manual.

Performance Standards. Demonstrate effective fire control voice commands and fire discipline. Maintain briefed flight profiles IAW TAC Manual. Demonstrate appropriate target engagement IAW TAC Manual.

Prerequisite. Read MAWTS-1 Aerial Gunnery Manual, CH-53 TAC

Manual, ASP, Fundamentals of AG and appropriate NATOPS flight manual.

Ordinance. 2 XM-218s and .50 Cal ammo.

External Syllabus Support. AG range.

10. Tactics (TAC)

a. Purpose. To plan, brief, execute and debrief a tactical mission in a low threat environment.

b. General

(1) The PUI will assist in the planning, briefing, and debriefing of each flight. Pilots shall conduct this flight IAW the standards required in MCO 3501.4, MCCRE, Volume III, Marine Heavy Helicopter Squadrons and/or MCO 3501.8 MCCRES, Volume IX, Special Operations, and the CH-53 TAC Manual. TAC-291 requires an NSI for initial instruction. TAC-291 will be flown under HLL conditions.

(2) TAC sorties will be flown with static XM-218s whenever practical.

(3) Read paragraph 132.

c. Crew Requirement. P/P/CC/AO.

d. Ground Training. Consult the MAWTS-1 Course Catalog for the recommended Academic Support Package lectures applicable to this stage of training.

e. Flight Training. (2 Flights, 4.0 Hours).

TAC-290 2.0 C 2 CH-53

Goal. Introduce assault support tactical procedures in a low threat environment, using MCCRE standards as a reference for mission planning.

Requirement

Discuss:

Aircrew coordination.
Planning based on METT-TSL.
Route planning.
Objective area planning.
Air and ground unit coordination.
Defensive measures.
TACC/DASC or TACC/HDC procedures.
Emissions control (EMCON).

Introduce:

Tactical mission planning, briefing, execution, and debriefing in support of assigned tasks.
Route planning and escort tactics.
Objective area planning.

DASC/HDC control.
EMCON conditions.

Conduct:

Route minimum of 125 nm.
Minimum of one EMCON lead change.
Perform a minimum of three landings as lead and three landings as wingman.
Use 1:250,000 and 1:50,000 maps as appropriate.

Performance Standards. Remain oriented within 300 meters and arrive in the objective area within ± 1 minute of L-Hour.

Prerequisite. TERF-231.

Ordinance. 2 XM-218s, and notional .50 Cal rounds.

External Syllabus Support. None.

TAC-291

2.0 C 2 CH-53 N NS

Goal. Introduce assault support tactical procedures in a low threat environment at night, using MCCRE standards as a reference for mission planning.

Requirement

Discuss:

Items per TAC-290.
Night systems planning considerations.
HNVS and HUD capabilities and limitations.

Review:

TAC-290.
HNVS and HUD operations.

Conduct: Same as TAC-290.

Performance Standards. Remain oriented within 300 meters and arrive in the landing zone within ± 1 minute of L-Hour.

Prerequisite. TERF-233.

Ordinance. 2 XM-218s, and notional .50 Cal rounds.

External Syllabus Support. None.

133. COMBAT QUALIFICATION PHASE. Pilots undergoing instruction in this phase must have completed the MAWTS-1 Course Catalog Academic Support Package lectures applicable to this phase of training prior to conducting night systems flights. Night Systems rules of conduct will be per T&R Manual, Administrative; i.e., the PUI may begin the LLL syllabus when designated NSQ HLL. A PUI is NSQ LLL (qualified to transport troops in all light level conditions) at the completion of the following flights: CAL-320, CAL-321, *CAL-322 (*ONLY REQUIRED TO CARRY TROOPS WHILE UTILIZING ANVIS HUD), TERF-330, TERF-331, and TAC-391. Pilots shall fly the above listed flights and

EXT-342 under ambient light conditions of less than .0022 LUX. An NSI is required for initial qualification and re-qualification for the following events: CAL-320, CAL-321, CAL-322, TERF-330, TERF-331, EXT-342, EXT-343 and TAC-391. EXT-343 may be flown in HLL conditions without an NSI if both pilots are NSQ HLL and EXT-241 (or EXT-242 if conducting Dual point external) proficient. EXT-343 may be flown in LLL conditions without an NSI if both pilots are NSQ LLL and EXT-341 and EXT-342 proficient. Pilots may fly all other night systems flights in this level under HLL or LLL conditions.

1. Confined Area Landings (CAL)

a. Purpose. To conduct CALs in low light level conditions (below .0022 LUX).

b. General

(1) Refer to the appropriate CH-53 NATOPS Flight Manual, NWP 3-22.5-CH53 TAC Manual, and MAWTS-1 NVD Manual for various LZ lighting configurations. This stage of instruction requires an NSI for initial qualification and all re-qualification.

(2) Read paragraph 133.

c. Crew Requirement. P/P/CC/AO.

d. Prerequisite. PUI must be NSQ HLL.

e. Flight Training. (3 Flights, 5.0 Hours).

CAL-320 1.5 C 1 CH-53 N NS

Goal. Perform NVD low work and CALs/MALs during low light level conditions.

Requirement

Discuss:

Aircrew coordination.
Comfort level.
Low altitude emergencies.
NVD emergencies.
Inadvertent IMC.
Low light level planning considerations.

Introduce:

LLL CALs.
Low work.

Review:

CAL-222 discussion items.
Low work.
HNVS operations.

Performance Standards. Perform a minimum of five landings. Same as CAL-222.

Prerequisite. NSQ HLL.

Ordnance. N/A.

External Syllabus Support. None.

CAL-321

2.0 C,R,H 2 CH-53 N NS

Goal. Develop proficiency in section CALs during low light level conditions.

Requirement

Discuss:

Same as CAL-223.
Closure rates.
Visual illusions.

Introduce:

Section CALs/MALs under low light level conditions.
Conduct at least one lead change.
Perform a minimum of four landings as lead and four as wingman.

Review:

NVD formation flight, section CALs, and navigation.

Performance Standards. Same as CAL-223.

Prerequisite. CAL-320.

Ordnance. N/A.

External Syllabus Support. None.

CAL-322

1.5 C,R,H 1 CH-53 N NS

Goal. Develop proficiency with CH-53 night systems in the low light level environment to include HNVS, NVDs and ANVIS-7 HUD.

Requirement

Discuss:

Review CAL-224 under low light conditions.

Introduce:

Review CAL-224 under low light conditions.

Review:

CAL-224 under low light conditions.

Performance Standards. IAW MAWTS-1 NVD Manual. Perform LLL low work with HUD. Perform LLL CALS with HUD.

Prerequisite. CAL-320.

Ordnance. N/A.

External Syllabus Support. None.

2. Terrain Flight (TERF)

a. Purpose. To develop proficiency in tactical TERF navigation and flight skills in the low level and contour flight profiles under low light level conditions.

b. General

(1) All night TERF instructional flights require a designated NSI. TERF rules of conduct are per T&R Manual, Administrative.

(2) Read paragraph 133.

c. Crew Requirement. P/P/CC/AO.

d. Ground academic training. Review appropriate chapters of CH-53 TAC Manual and MAWTS-1 NVD Manual.

e. Flight Training. (2 Flights, 3.5 Hours).

TERF-330 1.5 C 1 CH-53 N NS

Goal. Develop proficiency in tactical NVD navigation during LLL conditions.

Requirement

Discuss:

LLL planning considerations.
Aircrew coordination.
Comfort level.
Obstacle recognition and clearance.
Closure rates.
Visual illusions.
HNVS capabilities and limitations.

Review:

LLL NVD CALs.
HNVS operations.

Conduct:

Route to be a minimum of 75 nm.
Perform landings until demonstrated proficiency, minimum of five landings.
Use 1:250,000 or 1:50,000 maps, as appropriate.

Performance Standards. Navigate and remain oriented within 500 meters enroute. Navigate and remain oriented within 200 meters of intended point of landing.

Prerequisite. CAL-320.

Ordinance. N/A.

External Syllabus Support. None.

TERF-331 2.0 C,R,H 2 CH-53 N NS

Goal. Introduce tactical NVD formation flight and navigation during LLL conditions.

Requirement

Discuss:

LLL planning considerations.
Aircrew coordination.
Comfort level.
Obstacle recognition and clearance.
Closure rates.
Visual illusions.
Formation flight discipline.

Review:

Same as CAL-321.

Conduct:

Route to be a minimum of 100 nm.
Perform a minimum of one lead change.
Perform a minimum of three landings as lead and three as wingman.
Use 1:250,000 or 1:50,000 maps, as appropriate.

Performance Standards. Navigate and remain oriented within 500 meters of the route. Navigate and remain oriented within 200 meters of intended point of landing.

Prerequisite. CAL-321 and TERF-330.

Ordinance. N/A.

External Syllabus Support. None.

3. External Loads (EXT)

a. Purpose. To review operational and safety considerations discussed in the appropriate NATOPS Flight Manual and MCRP 4-23E, Multi-Service Helicopter Sling Load Manual, External Air Transport Message. Heavy lift should be emphasized, i.e., operating the aircraft at or near its maximum gross weight for the given ambient conditions. Re-qualification and subsequent flights can be single or dual point. Develop proficiency with heavy lift external loads from confined areas in the TERF environment.

b. General

- (1) Each Pilot should practice externals with heavy FMF equipment.
- (2) TERFI required for initial qualification and re-qualification of EXT-341.
- (3) Pilots may transport loads either single or dual point, as

appropriate.

(4) Read paragraph 133.

c. Crew Requirement. P/P/CC/AO.

d. Flight Training. (4 Flights, 6.5 Hours).

EXT-340 1.5 C,H 1 CH-53

Goal. Practice heavy external lift procedures.

Requirement

Discuss:

Aircrew coordination.
Comfort level.
HST operation/safety brief.
Low altitude emergencies.
Effects of wind.
Effects of high density altitude.
Preflight planning, including power computations, weight and balance considerations, and operational power checks.
Effects of high AOB turns.
Cargo jettison procedures.
PIO/PAO.
Load handling characteristics.
Power Settling/Settling with Power.

Introduce:

Techniques for heavy lift of FMF equipment.

Conduct:

Use appropriate heavy lift substitute if FMF equipment is not available.

Performance Standards. IAW with CH-53 TAC Manual. Operate in conditions approaching maximum aircraft performance within the boundaries of existing safety considerations.

Prerequisite. EXT-240 or EXT-241.

Ordinance. N/A.

External Syllabus Support. HST, single or dual point load.

EXT-341 1.5 C,R,H 1 CH-53

Goal. Introduce external flight in the TERF profile.

Requirement

Discuss:

Aircrew coordination.
Comfort level.
Preflight planning, including power computations, weight and balance considerations, and operational power checks.

Power settling/settling with power.
 Low altitude emergencies.
 Cargo jettison procedures.
 PIO/PAO.
 HST operation/safety brief.
 Wave-offs.
 Reduced visibility conditions.
 Terrain/obstacle clearance.
 Route planning considerations.

Introduce:
 TERF externals.

Review:
 Single and/or dual point procedures.
 TERF maneuvers.

Conduct:
 Minimum of one pickup and delivery required.

Performance Standards. IAW with CH-53 TAC Manual.

Prerequisite. TERF-230 and EXT-240 or EXT-241.

Ordinance. N/A.

External Syllabus Support. HST, single or dual point load.

EXT-342 1.5 C,R,H 1 CH-53 N NS

Goal. Introduce LLL NVD externals, dual point preferred.

Requirement

Discuss:

Same as EXT-242 and EXT-243.
 Loss of visual reference.

Introduce:
 LLL NVD externals.

Review:
 EXT-241 and EXT-242.

Performance Standards. Minimum of three pickups and deliveries required. Pickups and drop-offs performed within 5 meters of intended point of landing.

Prerequisite. EXT-242 or EXT-243 and CAL-320.

Ordinance. N/A.

External Syllabus Support. HST, single or dual point load.

EXT-343 2.0 C,R,H 1 CH-53 N NS

Goal. Introduce NVD external flight in the TERF profiles. Emphasize TERF flight with an external load. EXT-343 may be flown in HLL conditions without an NSI if both pilots are NSQ HLL and EXT-241 (or EXT-242 if conducting Dual point) proficient. EXT-343 may be flown in LLL conditions without an NSI if both pilots are NSQ LLL and EXT-341/EXT-342 proficient.

Requirement

Discuss:

- Aircrew coordination.
- Comfort level.
- Preflight planning, including power computations, weight and balance considerations, and operational power checks.
- Power settling/settling with power.
- Low altitude emergencies.
- Cargo jettison procedures.
- PIO/PAO.
- HST operation/safety brief.
- Flight envelopes of various loads.
- Pendant and load illumination techniques.
- NVD emergencies.
- Moon angle/shadowing.
- Wave-offs.
- Reduced visibility conditions.
- Terrain/obstacle clearance.

Introduce:

- NVD TERF externals in the TERF profile.

Review:

- Single and/or Dual point procedures.
- TERF maneuvers.

Conduct:

- Minimum of one pickup and delivery required.

Performance Standards. IAW with CH-53 TAC Manual.

Prerequisite. EXT-242 or EXT-243 (if HLL), or EXT-342 (if LLL).

Ordinance. N/A.

External Syllabus Support. HST, single or dual point load.

4. Defensive Measures (DM)

a. Purpose. To develop proficiency in acquiring and avoiding enemy surface-to-air threat, using EW/IR countermeasures and defensive measures in a low-to-medium threat environment. Upon completion of this stage, the pilot shall be able to effectively maneuver in a multi-plane flight against low altitude surface-to-air threats.

b. General. Pilots shall conduct this stage against both electromagnetic and IR threats. The utilization of an EW range or emitter with threat systems to include electromagnetic and ground based threat simulation; e.g.,

smokey SAMs, hand-held pyrotechnics, etc., will greatly enhance aircrew training. Use of the APR-39 and ALE-39 trainer or simulator will aid in preparing aircrew prior to flight. DM-350 requires a DM instructor (DMI) for initial qualification and re-qualification. Pilots undergoing this stage of instruction must be current and proficient in TERF-231. Continued training is not contingent upon completion of SDM-250. However, pilots should use simulators in conjunction with classroom instruction. If DM-350 is to be conducted at night then the DMI must also be an NSI.

c. Crew Requirement. P/P/CC/AO.

d. Ground Training

(1) Pilots shall complete the MAWTS-1 academic syllabus for DM specified in the MAWTS-1 Course Catalog prior to commencing the flight phase.

(2) Review applicable chapters of NWP 3-22.5-CH-53 Tactical Manual for EW/IR countermeasures, ASE, and tactical formation maneuvering. Consult the AFFTP 3-1 for threat systems information.

(3) Complete the DM class per the MAWTS-1 ASP prior to DM-350.

e. Flight Training. (1 Flight, 2.0 Hours).

<u>DM-350</u>	<u>2.0</u>	<u>C,R,H</u>	<u>2 CH-53</u>	<u>(N)(NS)</u>
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Goal. Introduce DM procedures and ASE employment against various surface-to-air threats.

Requirement

Discuss:

Operations of the ALE-39, APR-39, ALQ-157, AAR-47, MK-46, MJU-8 and MJU-27B flare; RR-129 and RR-144 chaff.

The strengths and weaknesses of each ASE system versus ground-to-air and air-to-air threats.

Aircrew coordination.

Section tactics and tactical maneuvering against surface-to-air threat systems.

Use of radar horizon, ground clutter, radar resolution cells, and radar masking techniques.

Introduce:

Various threat signatures concentrating on threat recognition and detection.

SAM evasive maneuvers coordinated with the dispensing of chaff and flares.

Section maneuvering against IR missiles or low altitude radar guided threats on an EW range or with an emitter.

Review:

Section threat avoidance, masking and the use of chaff and flares.

Performance Standards. IAW CH-53 TAC Manual and MAWTS-1 DM class.

Prerequisite. TERF-231 proficient and MAWTS-1 DM class.

Ordinance. 30 chaff and 30 flares.

External Syllabus Support. EW range or emitter with threat systems to include electromagnetic and ground based threat simulation; e.g. smokey SAMS, handheld pyrotechnics etc.

5. Aerial Refueling (AR) (CH-53E)

a. Purpose. To develop proficiency in AR.

b. General

(1) Discuss and become thoroughly familiar with all aspects of aircrew coordination as described in the CH-53E NATOPS Manuals and the NATOPS Air Refueling Manual (NAVAIR 00-8-T-110). The PUI must be NSQ HLL current to fly initial AR-362 under HLL conditions; moreover, he must be NSQ LLL current to fly initial AR-362 under LLL conditions. If pilots do not meet these conditions, the ARI shall also be an NSI. After pilots obtain initial currency, both pilots need only to be AR-362 complete and current to conduct NVD AR operations. Successful completion of each flight requires a minimum of three contacts with demonstrated proficiency and movement to the refueling position.

(2) Initial qualification and re-qualification require an ARI.

c. Crew Requirement. AR-360, 361: P/P/CC.
AR-362: P/P/CC/AO.

d. Ground Training. Pilots shall consult the MAWTS-1 Course Catalog for the recommended lectures in the Academic Support Package applicable to this stage of flight, in addition to the MAWTS-1 NVD Manual and CH-53 TAC Manual.

e. Flight Training. (3 Flights, 4.5 Hours).

<u>AR-360</u>	<u>1.5</u>	<u>C,H</u>	<u>1 CH-53E</u>
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Goal. Introduce and practice day AR procedures.

Requirement

Discuss:

Aircrew coordination.
Comfort level.
Rendezvous procedures, both VMC and IMC.
AR checklist.
Voice procedures.
Join-up procedures.
Multiple receiver flow around the tanker.
Observation, pre-contact, refueling and disconnect positions.
KC-130T/J configurations.
KC-130T/J emergencies.
Airspeeds/altitudes.
Crossovers.

Area of extreme turbulence.
 Hose response/markings.
 Inadvertent disconnects.
 AR emergencies.
 Control inputs and tip path awareness.
 Blade stall.
 NATOPS AR envelope chart.

Demonstrate/Introduce/Practice:

Rendezvous/join-up.
 Observation/pre-contact/contact/refuel/disconnect
 positions.
 Aircraft movement around the tanker.
 Post AR procedures.

Performance Standards. Demonstrate the ability to perform a
 successful join-up and movement to the observation position.
 Movement to a stable pre-contact, refueling and disconnect
 position. Conduct a minimum of 5 dry or wet plugs.
Prerequisite. None.

Ordinance. N/A.

External Syllabus Support. 1 KC-130 tanker.

AR-361

1.5 C,R,H 1 CH-53

Goal. Demonstrate proficiency in day AR techniques and
 procedures.

Requirement

Discuss:

Same as AR-360 discussion items.

Introduce:

Refueling from both sides of the tanker if available.

Review:

AR-360.

Performance Standards. Demonstrate the ability to maneuver
 the aircraft through all 5 positions, perform all voice
 procedures, and disengage from the tanker. Conduct a minimum
 of 4 dry and 1 wet plugs.

Prerequisite. AR-360.

Ordinance. N/A.

External Syllabus Support. 1 KC-130 tanker.

AR-362

1.5 C,R,H 1 CH-53 N NS

Goal. Introduce and practice night AR techniques and
 procedures with NVDs.

Requirement. Demonstrate proficiency in HAR while utilizing NVDs in HLL or LLL conditions.

Discuss:

Same as AR-360 discussion items.
NVD/HNVS considerations.
Light Level Planning considerations.
Night movement around tanker.
Multiple receiver conduct at night.
Closure rates.
Depth perception.
Receiver/tanker lighting.
Visual illusions.
Inadvertent IMC.
EMCON visual signals.
NVD emergencies.

Introduce: NVD AR.

Performance Standards. Demonstrate the ability to maneuver the aircraft through all 5 positions, perform all voice procedures, and disengage from the tanker. Conduct a minimum of 4 dry and 1 wet plugs.

Prerequisite. AR-361.

Ordinance. N/A.

External Syllabus Support. KC-130 tanker.

6. Carrier Qualification (CQ)

a. Purpose. To qualify pilots in day, night and NVD flight operations from a helicopter capable ship.

b. General. Discuss and become familiar with all aspects of shipboard operations and aircrew coordination applicable to the carrier qualification stage as described in the appropriate NATOPS Flight Manual, NWP-42, LHA/LHD NATOPS, and OPNAVINST 3710.7. Each initial instructional flight requires a minimum of five takeoffs and landings, additional takeoffs and landings as required to demonstrate proficiency.

c. Crew Requirement. CQ-370, 371: P/P/CC.
AO required for CQ-372.

d. Prerequisites. Pilots should complete the appropriate FCLP flight prior to flying the similar CQ flight. CQ-372 requires a designated NSI unless both pilots are NSQ HLL or NSQ LLL for appropriate ambient conditions.

e. Ground Training. Review shipboard operations and CQ procedures as contained in the appropriate NATOPS Flight Manual, NWP-42, LHA/LPH/LHD NATOPS and OPNAVINST 3710.7 prior to commencing this stage.

f. Flight Training. (3 Flights, 4.5 Hours).

CQ-370

1.5

C,H 1 CH-53Goal. Introduce day CQs.RequirementDiscuss:

Aircrew coordination.
 Comfort level.
 Feet wet/landing checklist.
 Closure rate.
 Wind envelopes.
 Aircraft lighting procedures.
 Deck markings.
 LSE signals.
 Voice procedures/Lost communication procedures.
 Shipboard landing patterns.
 Shipboard holding patterns.
 Shipboard instrument patterns.
 Shipboard emergencies.
 Air space control in the shipboard environment.

Introduce:

Day CQ.

Performance Standards. Same as FCLP-271.Prerequisite. FCLP-271.Ordinance. N/A.External Syllabus Support. Helicopter capable ship.CQ-371

1.5

C,H 1 CH-53 NGoal. Conduct night, unaided CQs.RequirementDiscuss:

CQ-370 discussion items.
 Spatial disorientation.
 Aircraft/deck lighting.

Introduce:

Unaided night CQs.

Review:

CQ-370.

Performance Standards. Same as FCLP-272.Prerequisite. FCLP-272 and CQ-370.Ordinance. N/AExternal Syllabus Support. Lit helicopter capable ship.

CQ-372 1.5 C,R,H 1 CH-53 N NS

Goal. Conduct NVD CQs.

Requirement

Discuss:

CQ-370 discussion items.
Scan techniques.
NVD aircraft/deck lighting.
NVD landing techniques.
NVD emergencies.

Introduce:

NVD CQs.

Performance Standards. Same as FCLP-273.

Prerequisite. FCLP-273 and CQ-370.

Ordinance. N/A.

External Syllabus Support. NVD compatible helicopter capable ship.

7. Aerial Gunnery (AG)

a. Purpose. To introduce and conduct NVD AG employment.

b. General. Discuss and become familiar with all aspects of AG as described in the MAWTS-1 Aerial Gunnery Manual, ASP Fundamentals of Aerial Gunnery, the CH-53 TAC Manual, and the appropriate NATOPS flight manual.

c. Crew Training. P/P/CC/AGO (AGUI, AGI).

d. Ground Training. AG-380 requires PUI to be NSQ per ambience or with an NSI for all initial and re-qualifications.

e. Flight Training. (1 Flight, 1.5 Hours).

AG-380 1.5 C,R,H 1 CH-53 N NS

Goal. Introduce XM-218 night weapons employment using NVDs.

Requirement

Review:

AG-280

Discuss:

Night adaptation and muzzle flash awareness.
Laser operations and safety per the CH-53 TAC Manual.
Employment of the AIM-1 or GCP-2V mounted lasers (if used).

Introduce:

Same as AG-280 in night environment.

Conduct:

Mission and aircrew brief.

Performance Standards. Same as AG-280.

Prerequisite. Read MAWTS-1 Aerial Gunnery Manual, CH53 TAC Manual, ASP, Fundamentals of Aerial Gunnery and appropriate NATOPS flight manual.

Ordinance. 2 XM-218s and .50 CAL ammo.

External Syllabus Support. AG range.

8. Tactics (TAC)

a. Purpose. To conduct missions in a medium threat environment while part of a multiple aircraft flight, using escort aircraft, if available.

b. General

(1) All mission briefs require an intelligence scenario. To the greatest extent possible, incorporate the employment of escort aircraft (fixed or rotary-wing), ALE-39, AAR-47, HNVS and HUD, APR-39, the .50 caliber machine gun, and use of the AR-5/M-24 gas masks. Pilots shall conduct these flights under the standards required in MCO 3501.4A, MCCRES, Volume III, Marine Heavy Helicopter Squadrons and/or MCO 3501.8A MCCRES, Volume VII, MAGTF Elements. Pilots shall use the CH-53 TAC Manual as a source document for planning and developing proficiency in planning, briefing, execution, and debriefing. TAC-391 must be flown under LLL conditions. TAC-391 requires an NSI for initial qualification and re-qualification.

(2) TAC sorties will be flown with static XM-218s whenever practical.

(3) Read paragraph 133.

c. Crew Requirement. P/P/CC/AO.

d. Flight Training. (2 Flights, 4.0 Hours).

TAC-390

2.0

C,R,H 2+ ACFT

Goal. Introduce assault support tactical procedures in a medium threat environment.

RequirementDiscuss:

Aircrew coordination.
Comfort level.
Flight leadership.
Utilize METT-TSL in mission planning.
ITG considerations.
Route and objective area planning.

Embark and Debark of Troops and equipment.
 Sectors of fire.
 Escort considerations.
 Fire Support Coordination considerations.
 Air and ground unit coordination.
 Threat systems and counter-tactics, as defined in defensive measures.
 Weapons preflight, control, and employment.
 Command & Control/C³ relationships EMCON procedures.

Review:

TERF considerations.
 ASE considerations.
 External/internal movement of cargo, supplies and personnel.
 Defensive measures.

Performance Standards. Remain oriented within 300 meters and arrive in the landing zone within ± 1 minute of L-Hour.
 Flight flown using MCCRE standards as a reference for mission planning

Prerequisite. TAC 290.

Ordnance. 2 XM-218 guns with 1000 rounds .50 caliber ammunition, 30 chaff and 30 flares.

External Syllabus Support. Assault Support Escort aircraft if available.

TAC-391

2.0

C,R,H 2+ ACFT N NS

Goal. Introduce assault support tactical procedures in a medium threat environment during low light level conditions; use MCCRES standards as a reference for mission planning.

Requirement

Discuss:

Items per TAC-390.
 Night systems planning considerations.
 Light level planning considerations.
 HNVS and HUD capabilities and limitations.
 Electro-Optic Tactical Decision Aid (EOTDA Data).
 Effects of ordnance delivery on NVDs.

Review:

TAC-390.
 HNVS and HUD capabilities and limitations.

Performance Standards. Remain oriented within 300 meters and arrival in the landing zone area within ± 1 minute of L-Hour.

Prerequisite. TERF-331.

Ordnance. 2 XM-218 guns with 1000 rounds .50 caliber ammunition, 30 chaff and 30 flares.

External Syllabus Support. Assault Support Escort aircraft if available.

134. FULL COMBAT QUALIFICATION PHASE

1. Helicopter Insertion & Extraction Techniques (HIE)

a. Purpose. To introduce HIE methods required in executing special operations.

b. General. The pilots shall conduct a brief with the supported unit.

c. Crew Requirement. P/P/CC/AO.

d. Prerequisites

(1) Aircrew shall be NSQ HLL or NSQ LLL as required for ambient light conditions and designated NVD troop transport capable to conduct HIE events with NVDs.

(2) Aircrew shall attend brief with appropriate master; e.g. fast rope, rappel, SPIE, and helocast.

e. Ground Training. Aerial delivery, fast rope, rappel, SPIE rig, and helocast training lectures from MAWTS-1 Academic Support Package and CH-53 TAC Manual, as appropriate.

f. Flight Training. (3 Flights, 4.5 Hours).

<u>HIE-400</u>	<u>1.5</u>	<u>C,R,H</u>	<u>1 CH-53</u>	<u>(N)(NS)</u>
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Goal. Introduce procedures for tactical insertion and/or extraction of a ground force via fast rope, rappelling or SPIE.

Requirement

Discuss:

Aircrew coordination.
 Safety precautions.
 Signals/communications with HRST master.
 Training master procedures.
 Rescue Hoist procedures and types of operations.
 Obstacle clearance.
 Precision hover/hover performance.
 Emergency procedures to include NVD emergencies.

Introduce:

Techniques for inserting personnel by fastrope, rappelling, SPIE.
 Signals/communications with HRST master.
 Precision hover.

Performance Standards. Execute approach and hover within ± 5 ft of intended altitude and within 2 meters of intended spot.

Prerequisite

CAL-220 for day.

CAL-222 for HLL.

CAL-320 for LLL.

Ordinance. N/AExternal Syllabus Support. HRST Master and ground safety personnel.HIE-4011.5C,R,H 1 CH-53Goal. Introduce procedures for tactical insertion of a ground force via helocast.RequirementDiscuss:

Aircrew coordination.
 Safety precautions.
 Training master procedures.
 Signals/communications with jump master.
 Obstacle clearance.
 Precision taxi techniques over water.
 Emergency procedures to include NVD emergencies.
 Vertigo and visual illusions.

Introduce:

Techniques for inserting personnel by helocast.
 Signals/communications with jump master.
 Precision taxi.

Performance Standards. Execute approach/hover within ± 5 ft/ ± 3 kts of intended altitude and ground speed.Prerequisite

CAL-220 for day.

CAL-222 for HLL.

CAL-320 for LLL.

Ordinance. N/A.External Syllabus Support. Jump Master, safety boat and safety personnel.HIE-4021.5C,R,H CH-53 (N)(NS)Goal. Introduce procedures for tactical insertion via para ops.RequirementDiscuss:

Aircrew coordination.
 Safety precautions.
 Signals/communications with jump master.

Training master procedures.
 Obstacle clearance.
 Emergency procedures to include NVD emergencies.

Introduce:

Techniques for inserting personnel by para ops.
 Signals/communications with jump master.

Performance Standards. Fly within ± 50 ft of designated altitude and ± 5 kts of designated airspeed.

Prerequisite. None.

Ordinance. N/A.

External Syllabus Support. Jump master and ground safety Personnel.

2. Defensive Measures (DM)

a. Purpose. To develop proficiency in evading enemy surface and air threats incorporating ASE in a low-to-medium threat environment. Upon completion of this stage, the pilot will be able to effectively maneuver to evade, in a multi-plane flight, low altitude surface-to-air and air-to-air threats.

b. General. Pilots shall conduct this stage against both electromagnetic and IR threats. The utilization of an EW range or emitter with threat systems to include electromagnetic and ground based threat simulation; e.g. smokey SAMs, hand-held pyrotechnics, etc. will greatly enhance aircrew training. The use of an APR-39 trainer or WST simulator will prepare aircrew prior to flight. DM-350, DM-450 and DM-451 require a DM instructor for initial qualification and re-qualification. Pilots undergoing this stage of instruction must be current and proficient in TERF-231. Continued training is not contingent upon completion of SDM-250. However, pilots should use simulators in conjunction with classroom instruction.

c. Crew Requirement. P/P/CC/AO.

d. Ground Training

(1) Pilots shall complete the MAWTS-1 academic syllabus for DM as specified in the MAWTS-1 Course Catalog prior to commencing the flight phase.

(2) Review applicable chapters of TAC Manual for EW/IR countermeasures, ASE, and tactical formation maneuvering. Consult the AFTTPM 3-1 for threat systems information.

e. Flight Training. (2 Flights, 2.0 Hours).

DM-450 1.0 C,R,H 2 CH-53

Goal. Introduce section DM against a helicopter aggressor.

Requirement

Discuss:

Aircrew coordination.
 Lookout doctrine.
 Situational awareness.
 Adversary aircraft parameters.
 Adversary weapons envelopes.
 Mutual support.
 Section tactical maneuvers.

Introduce:

Section tactical maneuvers in response to a threat helicopter.

Performance Standards. IAW CH-53 TAC Manual and MAWTS-1 DM class.

Prerequisite. TERF-231 proficient and MAWTS-1 DM class.

Ordinance. 60 flares.

External Syllabus Support. 1 helicopter to serve as adversary aircraft, preferably an attack helicopter.

DM-451

1.0

C,R,H 2 CH-53

Goal. Introduce section DM against a fixed wing aggressor.

Requirement

Discuss:

Aircrew coordination.
 Lookout doctrine.
 Situational awareness.
 Adversary aircraft parameters.
 Adversary weapons envelopes.
 Mutual support.
 Section tactical maneuvers.

Introduce:

Section tactical maneuvers in response to a fixed wing aircraft.

Performance Standards. IAW CH-53 TAC Manual and MAWTS-1 DM class.

Prerequisite. TERF-231 proficient and MAWTS-1 DM class.

Ordinance. 60 flares.

External Syllabus Support. 1 fixed wing aircraft to serve as an aggressor.

3. Nuclear, Biological, and Chemical (NBC)

- a. Purpose. To conduct flight operations while wearing NBC protective

equipment.

b. General. For the safe execution of initial NBC flights, one pilot and one aircrewman shall remain unmasked.

c. Crew Requirement. P/P/CC.

d. Ground Training

(1) Discuss wearing of the NBC defense suit, mask, hood, gloves and boots. Introduce proper maintenance and serviceability checks on equipment, emphasizing donning of equipment.

(2) Discuss physiological factors of flying with NBC protective equipment.

e. Flight Training. (1 Flight, 1.0 Hour).

NBC-460 1.0 C,R,H 1 CH-53 (N)(NS)

Goal. Introduce flight in a simulated NBC environment.

Requirement.

Discuss:

Aircrew coordination.
Comfort level.
Wearing of NBC equipment in the aircraft.
Distortion of vision.
Communications.
Proper use of NBC defensive equipment.
NVD concerns with NBC equipment.

Introduce:

Taxi, low work, pattern work.
Confined area landings.
Communications.

Performance Standards. Adequately taxi, hover, and fly while wearing NBC gear. Communicate effectively while wearing NBC gear.

Prerequisite

CAL-220 for day.
CAL-222 for HLL.
CAL-320 for LLL.

Ordinance. N/A.

External Syllabus Support. N/A.

4. Tactics (TAC)

a. Purpose. To conduct practical application exercises using skills developed throughout the syllabus. Pilots shall emphasize the integration of Marine aviation assets, threat and threat counter-tactics, and the C3 system.

These exercises will include mission planning, briefing, and execution of an assault support mission in a simulated medium to high threat environment. The total number of aircraft, as specified, may be a dissimilar mix of aviation assets.

b. General. Pilots shall conduct these flights under the standards required in MCO 3501.4, MCCRE, Volume III, Marine Heavy Helicopter Squadrons and/or MCO 3501.8 MCCRE, Volume IX, Special Operations. Pilots should use the CH-53 TAC Manual as a source document for planning. Pilots may conduct these flights in high or low light level conditions, if the participating pilots have the requisite NSQ designation.

c. Crew Requirement. P/P/CC/AO.

d. Ground Training. Consult the MAWTS-1 Course Catalog for the recommended lectures in the Academic Support Package applicable to this stage of flight.

e. Flight Training. (4 Flights, 10.0 Hours).

TAC-490 2.0 C 3+ ACFT

Goal. Develop integrated tactical flight proficiency in a low-to-medium threat environment; use MCCRES standards as a reference for mission planning.

Requirement

Discuss:

Objective area analysis.
Threat analysis and counter-tactics.
Escorts/supporting arms integration.
C3 integration.
ASE control/employment.

Introduce:

Discussion items.
Incorporate DASC, HDC, MEZ, and EMCON procedures.
Use escort assets emphasizing responsibilities of the air mission commander, assault flight leader, and escort flight leader.

Performance Standards. Remain oriented within 300 meters and arrival in the objective area within ± 1 minute of L-Hour.

Prerequisite. TAC 390.

Ordnance. 2000 rounds .50 caliber ammunition, 30 chaff and 30 flares.

External Syllabus Support. Assault Support Escort aircraft if available.

TAC-491 2.0 C,R,H 3+ ACFT N NS

Goal. Develop integrated tactical flight proficiency in an

integrated low-to-medium threat environment; use MCCRES standards as a reference for mission planning.

Requirement

Discuss:

- Objective area analysis.
- Threat analysis and counter-tactics.
- Escorts/supporting arms integration.
- C3 integration.
- ASE control/employment.

Introduce:

- Discussion items.
- Incorporate DASC, HDC, MEZ, and EMCON procedures.
- Use escort assets emphasizing responsibilities of the air mission commander, transport flight leader, and escort flight leader.

Performance Standards. Remain oriented within 300 meters and arrive in the objective area within ± 1 minute of L-Hour.

Prerequisite. TAC 390.

Ordinance. 2000 rounds .50 caliber ammunition, 30 chaff and 30 flares.

External Syllabus Support. Assault Support Escort aircraft if available.

TAC-492

2.0

C,R,H 2+ ACFT N NS

Goal. Develop tactical flight proficiency in urban terrain operations at night per the MAWTS-1 MOUT Manual.

Requirement

Discuss:

- Effects of ambient lighting on night systems in an urban area.
- Urban navigation.
- Targeting and fire support coordination in an urban area.

Introduce:

- Discussion items listed above.

Performance Standards. Remain oriented within 300 meters and arrive in the objective area within ± 1 minute of L-Hour.

Prerequisite. TAC 391.

Ordinance. 2000 rounds .50 caliber ammunition, 30 chaff and 30 flares.

External Syllabus Support. Assault Support Escort aircraft if available.

TAC-493 4.0 C,R,H 3+ ACFT (N)(NS)

Goal. Utilizing AR and/or TFBDS, execute a long range mission in a low-to-medium threat environment.

Requirement

Discuss:

Route planning.
Refueling considerations.
Escort/fire support coordination.
Utilization of TBFDS, FARP considerations.

Introduce:

Discussion items listed above.

Performance Standards. Remain oriented within 300 meters and arrival in the objective area within + 1 minute of L-Hour.

Prerequisite. TAC 390.

Ordinance. 2000 rounds .50 caliber ammunition, 30 chaff and 30 flares.

External Syllabus Support. Assault Support Escort aircraft if available. C-130 Tanker.

140. FRS IUT FLIGHT/SIMULATOR PERFORMANCE REQUIREMENTS. The 500 and 600 level flights do not affect CRP points.

1. Day and Night Unaided Instructor Training

a. Purpose. To develop qualified instructor pilots for day and night unaided events using a standardized flight training program.

b. General

(1) Fly IUT flights with a designated FRS Instructor Pilot.

(2) Pilots undergoing instructor training should fly in the right seat.

(3) All IUTs should complete every event of the IUT training syllabus.

c. Training Objectives. All IUT flights emphasize instructional techniques, briefing, and debriefing. The IUT will be capable of demonstrating all training objectives listed for the referenced syllabus flight. Emphasis on all flights is on training objectives, method of instruction, and student problem areas. At the completion of this stage of training, the Pilot will be designated an Instructor Pilot (IP) and is qualified to instruct all day and night unaided Combat Capable events.

d. Crew Requirement. IP/IUT/CC/AO.

e. Flight Training. (7 Flights, 11.0 Hours).

FAM-5531.51 CH-53

Goal. Introduce the IP brief and demonstrate standardized procedures for flight planning, preflight, and all day FAM stage maneuvers.

Requirement

Discuss:

Aircrew coordination.
 Preflight and postflight pilot briefings.
 Cockpit procedures.
 Techniques of instruction.
 Local course rules.

Conduct:

Instructors shall emphasize the ability to teach using all appropriate references and SOPs, evaluate problems, and apply corrective instruction.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. Preflight walk-around, egress and local course rules exam.

Ordinance. N/A.

External Syllabus Support. N/A.

FAM-5541.51 CH-53 N

Goal. Review all familiarization stage maneuvers at night.

Requirement

Discuss:

Aircrew coordination.
 The night unaided environment.

Conduct:

IUT will perform all night familiarization stage maneuvers with emphasis on the IUT's instructional technique.
 Instructors shall emphasize the ability to teach, evaluate problems, and apply corrective instruction of FAM maneuvers in the unaided night environment.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. None.

Ordinance. N/A.

External Syllabus Support. N/A.

INST-5552.0A/S 1 CH-53 (N)

Goal. Review basic instrument maneuvers, IFR planning, filing, and airway procedures.

Requirement

Discuss:

Aircrew coordination.
IFR planning.
Filing a [DD-175](#).
Airway procedures.
Precision/non-precision approaches.

Review:

Instrument checklist.
Attitude instrument flight.
Standard rate climbing and descending turns.
Recovery from unusual attitudes.
Vertical S-1 pattern.
Oscar pattern.

Conduct:

Fly a minimum of one precision and one non-precision approach.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. None.

Ordinance. N/A.

External Syllabus Support. N/A.

CAL-556

1.5

1 CH-53

Goal. Review CAL instruction techniques.

Requirement

Discuss:

Aircrew coordination.
Comfort level.

Review:

All CAL stage maneuvers.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. None.

Ordinance. N/A.

External Syllabus Support. N/A.

FORM-557

1.5

2 CH-53

Goal. Review formation instructional techniques and formation stage maneuvers emphasizing closure rates and radius of turn.

Requirement

Discuss:

Loss of visual contact.
Parade position.
Cruise turn principles.
Section CALs principles.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. None.

Ordinance. N/A.

External Syllabus Support. N/A.

EXT-558

1.5 1 CH-53

Goal. Review external operation instructional techniques.

Requirement

Discuss:

Aircrew coordination.
Single and dual point operations.
Load computations, preflight and in-flight.
Emergency procedures.
Aircraft limitations.

Review:

Single and dual point operations.

Conduct:

Perform a minimum of three successful hookups and releases.

Performance Standards. IAW CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. Preflight walk-around, Egress and Local course rules exam.

Ordinance. N/A.

External Syllabus Support. HST, certified load.

STANX-559

1.5 E 1 CH-53 (N)

Goal. Flight instructor standardization check.

Requirement

Discuss:

Aircrew coordination.
CH-53 limitations.

Course Rules.
FRS Standardization Manual.
Instruction techniques.

Performance Standards. IAW CH-53 NATOPS and FRS
Standardization Manual.

Prerequisites. None.

Ordinance. N/A.

External Syllabus Support. N/A.

141. INSTRUCTOR EVENTS

1. There are six graduate level courses that qualify instructors for specific portions of the T&R syllabus. These courses are as follows:

- a. Weapons and Tactics Instructor (WTI).
- b. Night Systems Instructor (NSI).
- c. Night Systems Familiarization Instructor (NSFI).
- d. Aerial Refueling Instructor (ARI).
- e. Terrain Flight Instructor (TERFI).
- f. Defensive Measures Instructor (DMI).

2. The MAWTS-1 Course Catalog contains the POIs for the above courses and the appropriate training codes. The community considers each particular stage of the T&R syllabus sufficient to maintain proficiency as an instructor.

3. Night Systems Familiarization Instructor Training

a. Purpose. To develop qualified instructor pilots for Night Vision Goggle events using a standardized flight training program.

b. General

- (1) Fly IUT flights with a designated NSI or MAWTS-1 Instructor.
- (2) Pilots undergoing instructor training should fly in the right seat.
- (3) All IUTs shall complete every event of the IUT training syllabus.

c. Training Objectives

(1) All IUT flights emphasize instructional techniques, briefing, and debriefing. The IUT will be capable of demonstrating all training objectives listed for the referenced syllabus flight. Emphasis on all flights is on training objectives, method of instruction, and student problem areas. At the completion of this stage of training, the pilot will be designated a NSFI and is qualified to instruct all Night Vision Goggle Combat Capable HLL events.

- (2) The MAWTS-1 Course Catalog contains the prerequisites and course

training requirements for this stage of training.

d. Crew Requirement. IP/IUT/CC/AO.

e. Flight Training. (4 Flights, 4.0 Hours).

NVD-560 Refer to MAWTS-1 Course Catalog.

NVD-561 Refer to MAWTS-1 Course Catalog.

NVD-562 Refer to MAWTS-1 Course Catalog.

NVD-563 Refer to MAWTS-1 Course Catalog.

4. Aerial Refueling Instructor (ARI)

a. Purpose. To develop qualified instructor pilots for AR events using a standardized flight training program.

b. General

(1) Complete flights in numerical order.

(2) IUT shall demonstrate instruction and proficiency in the observation, pre-contact, refuel and disconnect positions on both sides of the tanker, from the left seat.

(3) ARIs do not require NSI designation.

(4) An ARI is required to certify additional squadron ARIs.

(5) The completion of AR-520 and 521 satisfies the requirements for designation as an ARI at the discretion of the CO.

c. Recertification

(1) Previously certified CH-53E ARIs returning to the CH-53E requiring refresher or modified refresher training as defined in T&R Manual, Administrative must be recertified by an ARI. Upon recertification, the designation may be made at the discretion of the squadron commanding officer. The following comprises the recertification course:

(a) The IUT must meet all prerequisites listed previously.

(b) The IUT must complete the AR-521E flight evaluated by an ARI.

d. Ground Training. The AR IUT shall present to an ARI an AR class.

e. Flight Training. (2 Flights, 2.0 Hours).

AR-520

1.0

1 CH-53E

Goal. Demonstrate AR proficiency and instructional technique in the day environment.

Requirement

Discuss:

Instructional techniques.

Aircrew coordination.

Comfort level.
 Decision points.
 EmCon refueling procedures.
 Long range fuel management considerations.

Review:

AR procedures.
 AR communications.
 Emergency procedures.
 Flight briefing.
 NATOPS AR envelope chart.

Performance Standards. Demonstrate ability to maintain a stable pre-contact position (5-10 feet behind the basket). All misses controlled and smooth and in the upper ½ of the basket. Recognize and correct unsafe closure rates/control inputs. Smooth, controlled movement from contact to refuel position. Demonstrate plugging in a turn. Demonstrate a controlled miss. IUT should plug on both sides of tanker.

Prerequisite. AR-362 and TAC-493.

Ordinance. N/A.

External Syllabus Support. KC-130 (or USAF C-130).

AR-521

1.0 E CH-53E N NS

Goal. Demonstrate NVG AR proficiency and instructional technique.

Requirement

Discuss:

Instructional techniques.
 Aircrew coordination.
 Comfort level.
 Decision points.
 NVG EmCon refueling procedures and signals.
 Depth perception.
 NVG considerations.
 Visual illusions/Vertigo.
 Lighting configurations (Marine Corps/Joint).

Review:

AR procedures.
 AR communications.
 Emergency procedures.
 Flight briefing.
 NATOPS AR envelope chart.

Performance Standards. Demonstrate ability to maintain a stable pre-contact position (5-10 feet behind the basket). All misses controlled and smooth and in the upper ½ of the basket. Recognize and correct unsafe closure rates/control inputs. Smooth, controlled movement from contact to refuel

position. Demonstrate a controlled miss. IUT should plug on both sides of tanker.

Prerequisite. AR-362, TAC-493 and AR-520* (* Unless previously certified CH-53E ARI).

Ordinance. N/A.

External Syllabus Support. KC-130 (or USAF C-130).

5. Terrain Flight Instructor (TERFI)

a. Purpose. To develop qualified instructor pilots for day terrain flight events using a standardized flight-training syllabus.

b. General

(1) All IUT flights shall be flown with a designated TERFI.

(2) All IUTs shall be TERF qualified and current per T&R Manual, Administrative.

(3) All IUTs shall be section leader designated.

(4) The squadron will ensure that the IUT is prepared for certification. The certification stage of the flight syllabus must be complete within six months following the first IUT flight. If six months have elapsed since completion of any IUT flight, that flight must be reflown prior to completing the final certification flight.

c. Recertification

(1) Previously certified CH-53 TERFI's returning to the CH-53 requiring refresher or modified refresher training as defined in T&R Manual, Administrative must be recertified by a TERFI. Upon recertification, the designation may be made at the discretion of the squadron commanding officer. The following comprises the re-certification course:

(a) The IUT must meet all prerequisites listed previously.

(b) The IUT must successfully complete the TERFI exam administered by a TERFI.

(c) The IUT must complete the TERF 572E flight evaluated by a TERFI.

(2) Pilots certified as a TERFI in an aircraft other than the CH-53 who transition to the CH-53 as defined in T&R Manual, Administrative must complete the entire CH-53 TERFI Certification Course previously listed.

(3) Pilots certified as a TERFI converting within the CH-53 series who do not require refresher training as defined in T&R Manual, Administrative maintain their TERFI certification and may be designated a TERFI at the discretion of the squadron commanding officer.

d. Crew Requirement. IP/IUT/CC/AO.

e. IUT Ground Training

(1) The IUT will review and be capable of presenting the following classes from the MAWTS-1 Academic Support Package (ASP):

Terrain Flight Introduction (U)
 Tactical Aircrew Coordination (U)
 IR SAM Threat to Assault Support (U)
 RADAR SAM Threat to Assault Support (U)
 AAA Threat to Assault Support (U)

(2) The academic syllabus shall be completed within 60 days prior to beginning the certification stage of the flight syllabus.

(3) The IUT will successfully complete a TERFI exam, administered by a TERFI, prior to beginning the certification stage of the flight syllabus. The minimum-passing grade for the exam is 80 percent.

(4) The IUT will present to a TERFI one of the classes listed above, as determined by the TERFI, before completing the certification stage of the flight syllabus.

f. Flight Training. (3 Flights, 4.0 Hours).TERF-5701.52 CH-53

Goal. Demonstrate the ability to conduct flight navigation in the contour and low level profiles and tactical formation in the TERF environment with emphasis on instructional techniques.

RequirementDiscuss:

Aircrew Coordination in a TERF environment.
 Comfort Level.
 Instructional Techniques.
 Low altitude emergencies.
 Weapons and ALE/APR employment.
 Visual illusions associated with TERF flight.

Review:

Operational Power checks.
 TERF turns, rolls, contour/low level quick stops, bunts.
 Contour profiles.
 Low altitude emergencies.
 TERF navigation techniques and responsibilities.

Performance Standards. Using a 1:50,000 map, the IUT will navigate in the contour profile remaining oriented within 100 meters. The route shall be a minimum of 50 NM demonstrating both low level and contour profiles. The IUT must arrive at the final checkpoint within 1 minute of the planned time. The minimum number of checkpoints will be determined by the TERFI. The IUT will instruct tactical formation in the low level and contour profiles.

Prerequisites. TERF 232.

Ordnance. (2) .50 cal and chaff and flares as able.

External Syllabus Support. N/A.

TERF-571

1.0

1 CH-53

Goal. Demonstrate the ability to conduct all terrain flight maneuvers while flying with an external load, emphasizing instructional techniques.

Requirement

Discuss:

- Instructional techniques.
- Crew coordination in contour flight with externals.
- Voice and visual signals.
- Flight envelopes of various loads.
- Cargo jettison procedures.
- Low altitude emergencies.
- Single/Dual engine operations (with & without the load).
- Illusions of terrain flight.
- HST requirements.

Review:

- All TERF maneuvers with external loads emphasizing requirements for early initiation of maneuvers and flight profile corrections to prevent pilot induced/assisted oscillations.
- Operational power checks.

Performance Standards. The IUT will conduct a minimum of two hookups and deliveries placing the load within five meters of the intended point.

Prerequisite. Ext 341.

Ordnance. N/A.

External Syllabus Support. HST.

TERF-572

1.5

E 1 CH-53

Goal. Evaluate the IUT's ability to perform and instruct all phases of terrain flight and terrain flight navigation.

Requirement

Discuss:

- Crew coordination.
- Instructional techniques.
- Comfort level.
- Illusions of terrain flight.
- Low altitude emergencies.
- Single/dual engine operations.
- TERF/navigation techniques and responsibilities.

Weapons and ASE employment.

Review:

Operational Power Checks.

All TERF maneuvers.

Performance Standards. Accomplish operational power checks. Accomplish all TERF maneuvers without experiencing negative g's. Maintain altitude within 50 feet on quick stop. Navigate using a 1:50,000 map and remain within 200 meters of prescribed routing and arrive at the final checkpoint within 1 minute of the planned time. Instruct all TERF maneuvers. The route shall be a minimum of 50 NM in the contour mode. The minimum number of checkpoints will be determined by the TERFI.

Prerequisites. TERF-232, Ext-341, TERF-570* and TERF-571*
* unless previously certified CH-53 TERFI.

150. REQUIREMENTS, QUALIFICATIONS AND DESIGNATIONS. This phase contains required evaluation and flight leadership events for tracking purposes.

151. EVALUATION (EVAL) FLIGHTS

1. Purpose. To determine qualification for designation in specific flight skills, systems knowledge and procedures.
2. General. Squadrons should use this phase of training for check flights.
3. Crew Requirements. P/P/CC/AO (as required).
4. Ground/Academic Training. Reference OPNAVINST 3710.7R, CH-53 NATOPS and Instrument Flight Manuals.
5. Flight Training. (2 Flights, 3.0 Hours).

EVAL-600 1.5 E A/S 1 CH-53 (N) (NS)

Goal. Conduct Annual NATOPS evaluation.

Requirement. As directed in the CH-53 NATOPS Flight Manual, Chapter 18, and OPNAVINST 3710.7R, Chapter 2.

Performance Standards. The proficiency expected by the evaluator in this flight shall be commensurate with the experience level of the pilot under evaluation.

Prerequisite. The open and closed book NATOPS examinations shall be completed prior to the commencement of the check flight.

Ordinance. N/A.

External Syllabus Support. WST/APT as required.

EVAL-601 1.5 E S/A 1 CH-53 (N) (NS)

Goal. Conduct annual instrument evaluation.

Requirement. As directed in the CH-53 NATOPS Flight Manual, Chapter 13 and OPNAVINST 3710.7R, Chapter 13.

Performance Standards. Demonstrate proficiency in all phases of instrument flight and flight planning IAW the NATOPS Instrument Flight Manual.

Prerequisite. Completion of Instrument Ground School and all instrument requirements per OPNAVINST 3710.7R prior to the commencement of the check flight.

Ordinance. N/A.

External Syllabus Support. As required.

EVAL-602 2.0 E 1 CH-53

Goal. Conduct a functional check pilot evaluation.

Requirement. Squadrons shall evaluate pilots for designation at the discretion of the commanding officer per the criteria in the CH-53 NATOPS Flight Manual, OPNAVINST 3710.7, 4790 Naval Aviation Maintenance Program and local SOPs. Squadrons shall base this evaluation after completion of a locally prepared syllabus.

Performance Standards. Demonstrated proficiency in all aspects of conducting functional check flights (FCF) on the CH-53.

Prerequisite. As determined by squadron CO, QAO and STAN Board.

Ordinance. N/A.

External Syllabus Support. As required.

152. FLIGHT LEADERSHIP (FL)

1. Purpose. To demonstrate requisite knowledge, leadership, airmanship and judgment in all phases of flight commensurate with the experience level of the pilot under evaluation.

2. General. Squadrons shall evaluate pilots for designations at the discretion of the commanding officer per the criteria in the CH53 NATOPS Flight Manual, OPNAV 3710.7R and local SOPs. Upon the successful completion of the Check Flight the new Section/Division/Flight Leader or Air Mission Commander will be designated in writing by the commanding officer. Requirements may be waived at the discretion of the commanding officer and details of the waiver will be annotated in the pilots APR.

3. Crew Requirements. P/P/CC/AO (as required).

4. Ground/Academic Training. Reference CH-53 NATOPS, TAC Manual, MAWTS-1 ASP, and applicable SOPs.

5. Flight Training. (7 Flights, 10.5 Hours).

FL-603 1.5 E, H, C 1 CH-53

Goal. Conduct day HAC review.

Requirement. As directed in the CH-53 NATOPS Flight Manual Chapter 13 and OPNAVINST 3710.7R, Chapter 13. To include but not limited to all practicable operations and procedures contained in the T&R syllabus.

Performance Standards. Demonstrate proficiency and leadership in all phases of CH-53 operations as appropriate. Emphasis will be placed on NATOPS, CH-53 TAC Manual, MAG and squadron SOPs, and the Instrument Flight Manual.

Prerequisite. The Open and Closed book NATOPS examinations shall be completed prior to the commencement of the check flight.

Ordinance. As required.

External Syllabus Support. As required.

FL-604 1.5 E, H, C 1 CH-53 N NS

Goal. Conduct night/NVD HAC review.

Requirement. Continuation of review flight to include but not limited to all practicable operations and procedures contained in the T&R syllabus as they pertain to night operations and procedures.

Performance Standards. Demonstrate proficiency and leadership in all phases of CH-53 operations as appropriate. Emphasis will be placed on NATOPS, CH-53 TAC Manual, MAWTS-1 NVD Manual, MAG and squadron SOPs, and the Instrument Flight Manual.

Prerequisite. FL-603.

Ordinance. As required.

External Syllabus Support. As required.

FL-605 2.5 E, H, C 1 CH-53 N NS

Goal. Conduct day into night HAC check.

Requirement. As directed in the CH-53 NATOPS Flight Manual,

Chapter 13 and OPNAVINST 3710.7R, Chapter 13. To include but not limited to all practicable operations and procedures contained in the T&R syllabus.

Performance Standards. Squadrons shall evaluate pilots for HAC designation at the discretion of the commanding officer per the criteria in the CH-53 NATOPS Flight Manual, OPNAVINST 3710.7, and local SOPs. This flight will cover all practicable operations and procedures contained in the T&R syllabus.

Prerequisite. FL-604.

Ordinance. As required.

External Syllabus Support. As required.

FL-606

1.5 2 CH-53 (N) (NS)

Goal. Conduct Section Leader check.

Requirement. Demonstrate the leadership necessary for effective mission accomplishment.

Performance Standards. Pilots shall conduct this flight under the standards required in MCO 3501.4, MCCRES, Vol III, Marine Heavy Helicopter Squadrons and/or MCO 3501.8 MCCRES, Vol IX, Special Operations. Moreover, pilots may use CH-53 TAC Manual as a source document for planning.

Prerequisite. Plan, brief, fly TAC-290 or 291.

Ordinance. Same as appropriate TAC flights.

External Syllabus Support. Same as appropriate TAC flights.

FL-607

1.5 3 CH-53 (N) (NS)

Goal. Conduct Division Leader check.

Requirement. Demonstrate the leadership necessary for effective mission accomplishment.

Performance Standards. Pilots shall conduct this flight under the standards required in MCO 3501.4, MCCRES, Vol III, Marine Heavy Helicopter Squadrons and/or MCO 3501.8 MCCRES, Vol IX, Special Operations. Moreover, pilots may use CH-53 TAC Manual as a source document for planning.

Prerequisite. Plan, brief, fly TAC-390 or 391.

Ordinance. Same as appropriate TAC flights.

External Syllabus Support. Same as appropriate TAC flights.

FL-6081.52 Div+ (N) (NS)Goal. Conduct Flight Leader check.

Requirement. Brief and lead a multi-division mission emphasizing flight coordination, flight discipline, inadvertent IMC, rendezvous procedures and inflight emergency coordination.

Performance Standards. Pilots shall conduct this flight under the standards required in MCO 3501.4, MCCRES, Vol III, Marine Heavy Helicopter Squadrons and/or MCO 3501.8 MCCRES, Vol IX, Special Operations. Moreover, pilots may use CH53 TAC Manual as a source document for planning.

Prerequisite. TAC-390 and 391.

Ordinance. As required.

External Syllabus Support. As required.

FL-6091.52+ Div (N) (NS)Goal. Conduct Air Mission Commander check.

Requirement. The Mission Commander designation is a function of flight leadership, maturity and experience. The Mission Commander should be evaluated on his ability to integrate the six functions of Marine aviation. The Mission Commander should lead the mission from a C&C aircraft, if available.

Performance Standards. Pilots shall conduct this flight under the standards required in MCO 3501.4, MCCRES, Vol III, Marine Heavy Helicopter Squadrons and/or MCO 3501.8 MCCRES, Vol IX, Special Operations. Moreover, pilots may use CH-53 TAC Manual as a source document for planning.

Prerequisite. TAC 490 and 491.

Ordinance. As required.

External Syllabus Support. As required.

160. ORDNANCE REQUIREMENTS. Annual ordnance requirements are developed on a "per crew" basis per OPNAVNOTE 8010.

ORDNANCE	100 SERIES	200 SERIES	300 SERIES	400 SERIES	REFRESHER	IUT	ANNUAL*
Chaff	0	0	90	90	90	0	110
Flares	0	0	90	210	210	0	230
.50 CAL	See Crew Chief syllabus for numbers.						

* Annual Ordnance requirements maintain aircrew proficiency.

T&R MANUAL, CH-53

AIRCRAFT: CH-53

MOS: 7564/7566

CREW POSITION: PILOT

STAGE	FLT TRNG CODE	HRS	REFLY INTERVAL	CRP	C	R	H	REMARKS
COMBAT CAPABLE PHASE								
SFAM	100	1.0	*	0.2	X	X	X	S
	101	1.0	*	0.2				S
	102	1.0	*	0.2				S
	103	1.0	*	0.2				S
	104	1.0	*	0.2				S ACT
	105	1.5	*	0.2	X	X	X	S ACT
	106	1.0	*	0.2	X	X	X	S ACT
FAM	107	1.0	*	0.2				S
	110	1.5	*	1.0	X		X	A
	111	1.5	*	1.0	X			A
	112	1.5	*	1.0	X			A
	113	1.5	*	1.0				A
	114	1.5	*	1.0	X	X	X	A
	115	1.5	*	1.0				A
	116	1.5	*	1.0	X	X	X	A
	117	1.5	*	1.0				A
	118	1.5	*	1.0	X	X	X	A
	119	1.5	*	1.0				A
	120	1.5	*	1.0	X	X	X	A N
	121	1.5	*	1.0	X			A N NS
	122	1.5	*	1.0	X	X	X	A N NS
SINST	130	1.0	*	0.2				S ACT
	131	1.0	*	0.2	X	X	X	S ACT
	132	1.0	*	0.2	X	X	X	S ACT
	133	1.0	*	0.2				S ACT
	134	1.0	*	0.2				S ACT
	135	1.5	*	0.5				A/S (N) (NS)
INST	136	1.5	*	0.5	X	X	X	A/S (N) (NS)
	137	1.5	*	1.0	X	X	X	A/S (N) (NS)
	138	1.5	*	1.0	X			A/S (N) (NS)
SNAV NAV	140	1.0	*	0.2				S
	141	2.0	*	1.0				A
	142	2.0	*	1.0				A N NS
SFORM FORM	150	1.0	*	0.2	X	X	X	S
	151	1.5	*	1.0	X	X	X	A 2 A/C
	152	1.5	*	1.0				A 2 A/C N NS
SCAL CAL	160	1.0	*	0.2				S NS
	161	1.5	*	1.0	X	X	X	A
	162	1.5	*	1.0				A 2 A/C
	163	2.0	*	1.0				A N NS
EXT	170	1.0	*	1.0	X		X	A
	171	1.0	*	1.0	X		X	A NS
	172	1.5	*	1.0	X	X	X	A
	173	1.5	*	1.0	X	X	X	A NS

Figure 1-2.--Pilot Refly Interval, Combat Readiness Percentage.

AIRCRAFT: CH-53 MOS: 7564/7566 CREW POSITION: PILOT

STAGE	FLT TRNG CODE	HRS	REFLY INTERVAL	CRP	C	R	H	REMARKS
TERF	180	1.5	*	1.0	X	X	X	A
	181	1.5	*	1.0				A
REV	190	1.5	*	1.3	X	X	X	A
CCX	191	2.0	*	1.5	X	X	X	A E
COMBAT READY PHASE								
SFAM/FLIR	200	1.5	12	0.0/0.1	X	X	X	NS
FAM/INST	201	1.5	6	0.5/0.2	X			A/S (N)
FORM	210	1.5	12	0.5	X			A 2 A/C
	211	2.0	6	0.8	X			A 2 A/C N NS
CAL	220	1.5	12	0.5/0.4	X			A
	221	1.5	12	0.5/0.4	X	X	X	A 2 A/C
	222	1.5	6	0.5	X			A N NS
	223	2.0	6	1.0	X	X	X	A 2 A/C N NS
	224	1.5	*	0.0	X	X	X	A N NS
TERF	230	1.5	12	0.6/0.4	X			A
	231	1.5	12	0.5	X	X	X	A 2 A/C
	232	2.0	6	1.0	X			A N NS
	233	2.0	6	1.0	X	X	X	A 2 A/C N NS
EXT	240	1.5	12	0.5	X		X	A
	241	1.5	12	0.0/0.5	X	X	X	A
	242	1.5	6	1.0	X			A N NS
	243	1.5	6	1.0	X	X	X	A N NS
SDM	250	1.5	12	0.0/0.1	X	X	X	S (NS)
SAR	260	1.0	12	0.0/0.1	X	X	X	S (NS)
SCQ	270	1.0	12	0.2/0.1	X		X	S (NS)
FCLP	271	1.0	12	0.5	X		X	A
	272	1.0	12	1.0	X		X	A N
	273	1.0	12	1.0	X		X	A N NS
AG	280	2.0	*	0.4	X	X	X	A
TAC	290	2.0	12	1.0	X			A 2 A/C
	291	2.0	12	1.0	X			A 2 A/C N NS
COMBAT QUALIFICATION PHASE								
CAL	320	1.5	6	1.5/1.0	X			A N NS
	321	2.0	6	1.5/1.5	X	X	X	A 2 A/C N NS
	322	1.5	*	0.0/0.0	X	X	X	A N NS
TERF	330	1.5	6	1.5/1.0	X			A N NS
	331	2.0	6	1.5/1.5	X	X	X	A 2 A/C N NS

Figure 1-2.--Pilot Refly Interval, Combat Readiness Percentage (Cont).

AIRCRAFT: CH-53

MOS: 7564/7566

CREW POSITION: PILOT

STAGE	FLT		REFLY		C	R	H	REMARKS
	TRNG CODE	HRS	INTERVAL	CRP				
EXT	340	1.5	12	0.5/1.0	X		X	A
	341	1.5	12	1.5/1.0	X	X	X	A
	342	1.5	6	1.5/1.5	X	X	X	A N NS
	343	2.0	6	1.5/1.5	X	X	X	A N NS
DM	350	2.0	12	1.5/1.0	X	X	X	A 2 A/C (N) (NS)
AR	360	1.5	6	0.0/1.0	X		X	A
	361	1.5	6	0.0/1.0	X	X	X	A
	362	1.5	6	0.0/1.5	X	X	X	A N NS
CQ	370	1.5	12	1.0/1.0	X		X	A
	371	1.5	12	0.5/0.5	X		X	A N
	372	1.5	12	1.0/1.0	X	X	X	A N NS
AG	380	1.5	*	1.0/0.5	X	X	X	A 2 A/C N NS
TAC	390	2.0	12	2.0/1.0	X	X	X	A 2+A/C
	391	2.0	12	2.0/1.5	X	X	X	A 2+A/C N NS
FULL COMBAT QUALIFICATION PHASE								
HIE	400	1.5	12	0.3	X	X	X	A (N) (NS)
	401	1.5	12	0.3	X	X	X	A
	402	1.5	12	0.3	X	X	X	A (N) (NS)
DM	450	1.0	12	0.5	X	X	X	A 2V1 R/W
	451	1.0	12	0.5	X	X	X	A 2V1 F/W
NBC	460	1.0	12	0.3	X	X	X	A
TAC	490	2.0	12	0.6	X			A 3+A/C
	491	2.0	12	0.7	X	X	X	A 3+A/C N NS
	492	2.0	12	0.7	X	X	X	A 2+A/C N NS
	493	4.0	12	0.8	X	X	X	A 3+A/C(N) (NS)
INSTRUCTOR AND SPECIAL FLIGHT PERFORMANCE REQUIREMENTS								
DAY AND NIGHT UNAIDED INSTRUCTOR UNDER TRAINING								
FAM	553	1.5	*	N/A				A
	554	1.5	*	N/A				A N
INST	555	2.0	*	N/A				A/S (N)
CAL	556	1.5	*	N/A				A
FORM	557	1.5	*	N/A				A 2 A/C

Figure 1-2.--Pilot Refly Interval, Combat Readiness Percentage (Cont).

AIRCRAFT: CH-53

MOS: 7564/7566

CREW POSITION: PILOT

STAGE	FLT TRNG CODE	HRS	REFLY INTERVAL	CRP	C	R	H	REMARKS
EXT	558	1.5	*	N/A				A
STANX	559	1.5	*	N/A				A (N)
AERIAL REFUELING INSTRUCTOR UNDER TRAINING								
AR	520	1.0	*	N/A				A
	521	1.0	*	N/A				A N NS
EVALUATIONS AND FLIGHT LEADERSHIP PERFORMANCE REQUIREMENTS.								
EVAL	600	1.5	12	N/A				A/S E (N) (NS)
	601	1.5	12	N/A				S/A E (N) (NS)
	602	2.0	*	N/A				A E
FL	603	1.5	*	N/A	X		X	A E
	604	1.5	*	N/A	X		X	A E N NS
	605	1.5	*	N/A	X		X	A E N NS
	606	1.5	*	N/A	X			A E 2 A/C (N) (NS)
	607	1.5	*	N/A	X			A E 3 A/C DIV (N) (NS)
	608	1.5	*	N/A	X			A E 2 DIV+ (N) (NS)
	609	1.5	*	N/A	X			A E 2 DIV+ (N) (NS)

Figure 1-2.--Pilot Refly Interval, Combat Readiness Percentage (Cont).

CH-53 PILOT FLIGHT UPDATE CHAINING

<u>STAGE</u>	<u>FLIGHT</u>	<u>FLIGHTS UPDATED</u>
SINST	200	
FAM	201	200
FORM	210	
	211	210
CAL	220	
	221	210, 220
	222	220
	223	210, 211, 220, 221, 222
	224	220, 222
TERF	230	
	231	210, 230
	232	220, 222, 230
	233	210, 211, 220, 221, 222, 223, 230, 231, 232
EXT	240	220
	241	220, 240
	242	220, 222, 240, 241
	243	220, 222, 240, 241, 242
SDM	250	
SAR	260	
SCQ	270	
FCLP	271	270
	272	270, 271
	273	270, 271, 272
AG	280	
TAC	290	210, 220, 221, 230, 231
	291	210, 211, 220, 221, 222, 223, 230, 231, 232, 233, 290
CAL	320	220, 222
	321	210, 211, 220, 221, 222, 223, 320
	322	220, 222
TERF	330	220, 222, 230, 232, 320
	331	210, 211, 220, 221, 222, 223, 230, 231, 232, 233, 320, 321, 330
EXT	340	220, 240
	341	220, 230, 240, 340
	342	220, 222, 240, 241, 242, 320, 340
	343	220, 222, 230, 232, 240, 241, 242, 320, 330, 340, 341, 342
DM	350	210, 230, 231, 250
AR	360	260
	361	260, 360
	362	260, 360, 361

Figure 1-3.--Pilot Flight Update Chaining.

<u>STAGE</u>	<u>FLIGHT</u>	<u>FLIGHTS UPDATED</u>
CQ	370	270,271
	371	270,271,272,370
	372	270,271,272,273,370,371
AG	380	280
TAC	390	210,220,221,230,231,290,
	391	210,211,220,221,222,223,230,231,232,233,290,291,320, 321,330,331,390
HIE	400	
	401	
	402	
DM	450	210,230,231,250
	451	210,230,231,250
NBC	460	220
TAC	490	210,220,221,230,231,290,390
	491	210,211,220,221,222,223,230,231,232,233,290,291,320, 321,330,331,390,490
	492	210,211,220,221,222,223,230,231,232,233,290,291 (If conducted in LLL, include TAC-391 on NAVFLIR)
	493	210,220,221,230,231,290,390,490 (Include appropriate AR and TAC event codes for ambient conditions on NAVFLIR)
EVAL	600	Add appropriate training code to NAVFLIR.
	601	Add appropriate training code to NAVFLIR.
FL	602	Add appropriate training code to NAVFLIR.
	603	Add appropriate training code to NAVFLIR.
	604	Add appropriate training code to NAVFLIR.
	605	Add appropriate training code to NAVFLIR.
	606	Add appropriate training code to NAVFLIR.
	607	Add appropriate training code to NAVFLIR.
	608	Add appropriate training code to NAVFLIR.
	609	Add appropriate training code to NAVFLIR.

Figure 1-3.--Pilot Flight Update Chaining (Cont).

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ALL FLIGHTS	US	BA	AV	AA
- PREPARATION				
- WEIGHT & POWER				
- SYSTEMS KNOWLEDGE				
- PREFLIGHT/POSTFLIGHT				
- COCKPIT PROCEDURES				
- HEADWORK				
- RADIO PROCEDURES				
- COURSE RULES				
- BASIC AIRWORK				
- AIRCREW COORDINATION				
FAMILIARIZATION				
- TAXI				
- VERTICAL TAKEOFF				
- VERTICAL LANDING				
- LOW WORK				
- TRANS TO FORWARD FLIGHT				
- NORMAL APPROACH				
- PRECISION APPROACH				
- NO HOVER LANDING				
- RUNNING TAKEOFF/ LANDING				
- QUICK STOP				
- HIGH ANGLE OF BANK				
- PRACTICE AUTOROTATION				
- ENGINE OUT				
- AFCS/ SERVOS OFF/ AMPS OFF				
NIGHT SYSTEMS				
- NS ADAPTATION				
- LIGHT DISCIPLINE				
- NIGHT FORMATION				
INSTRUMENTS				
- INSTRUMENT CHECKLIST				
- INSTRUMENT TAKEOFF				
- BASIC INSTRUMENT WORK				
- UNUSUAL ATTITUDE				
- BASIC INSTRUMENT				
- PARTIAL PANEL				
- ATC PROCEDURES				
- DD-175/ DD-175-1/ ICAO				
- ADF				
- VOR				
- TACAN				
- GCA				
- ILS				
- MISSED APPROACH				
- ENROUTE NAVIGATION				

FORMATION	US	BA	AV	AA
- PARADE				
- COMBAT CRUISE				
- COMBAT SPREAD				
- TURN PRINCIPLES				
- CROSSEVERS				
- OVERRUN				
- TURN PATTERN				
- BREAK-UP & RENDEZVOUS				
- LEAD CHANGE				
- SECTION				
CONFINED AREA LANDINGS				
- LANDING ZONE BRIEF				
- APPROACH				
- OBSTACLE APPROACH				
- OBSTACLE TAKEOFF				
- TACTICAL APPROACH				
EXTERNALS				
- HOOK/PENDANT PREFLIGHT				
- OP POWER CHECKS				
- PRECISION HOVER				
- PICK-UP				
- PATTERN				
- DELIVERY				
NAVIGATION - TERF				
- MAP PREPARATION				
- MAP INTERPRETATION				
- TIME DISTANCE CHECKS				
- FUEL PLANNING				
- IN-FLIGHT ORIENTATION				
- CHECK POINT				
- TERF/ AIRCRAFT AWARENESS				
- LOW LEVEL/ CONTOUR FLIGHT				
- MASKING/UNMASKING				
- BUNT				
- ROLL				
- TERF TURN				
- TERF QUICK STOP				
HEADWORK				
- DECISION MAKING				
- ASSERTIVENESS				
- MISSION ANALYSIS				
- COMMUNICATION				
- LEADERSHIP				
- ADAPTABILITY/ FLEXIBILITY				
- SITUATIONAL AWARENESS				
- CREW COMFORT				

Figure 1-4.-- Pilot Combat Capable Training Aircrew Training Form.

REMARKS:

STRENGTHS:

WEAKNESS:

DATE OF FLIGHT	_____	FLIGHT TIME	_____
TRAINING CODE	_____	LANDINGS	_____
INSTRUCTOR	_____	STUDENT	_____

Figure 1-4.--Pilot Combat Capable Training Aircrew Training Form (Cont).

	US	BA	AV	AA		US	BA	AV	AA
ALL FLIGHTS					- OBSTACLE TAKEOFF				
- PREPARATION					- TACTICAL APPROACH				
- WEIGHT & POWER					TERRAIN FLIGHT				
- SYSTEMS KNOWLEDGE					- MAP PREPARATION				
- PREFLIGHT/POSTFLIGHT					- MAP INTERPRETATION				
- COCKPIT PROCEDURES					- TIME DISTANCE CHECKS				
- HEADWORK					- FUEL PLANNING				
- SITUATIONAL AWARENESS					- PERFORMANCE CHECK				
- RADIO PROCEDURES					- IN-FLIGHT ORIENTATION				
- COURSE RULES					- MASKING/UNMASKING				
- BASIC AIRWORK					- BUNT				
- AIRCREW COORDINATION					- ROLL				
- EMERGENCY PROCEDURES					- TERF TURN				
- NS ADAPTATION					- TERF QUICK STOP				
- CREW COMFORT					EXTERNALS				
FAMILIARIZATION					- HOOK/PENDANT PREFLIGHT				
- LOW WORK					- OP POWER CHECKS				
- NORMAL APPROACH					- PRECISION HOVER				
- PRECISION APPROACH					- PICK-UP				
- NO HOVER LANDING					- PATTERN				
- RUNNING LANDING/TAKEOFF					- DELIVERY				
- PRACTICE AUTOROTATION					NBC				
- SIMULATED ENGINE FAILURE					- NBC ADAPTATION				
- AFCS/SERVOS OFF					DEFENSIVE MANEUVERS				
INSTRUMENTS					- THREAT CONSIDERATION				
- INSTRUMENT CHECKLIST					- REC PLAN				
- INSTRUMENT TAKEOFF					- EXPENDABLE DEPLOYMENT				
- BASIC INST AIRWORK					- ALE PROCEDURES				
- UNUSUAL ATT RECOVERY					- APR PROCEDURES				
- PARTIAL PANEL					- LOOKOUT DOCTRINE				
- ATC PROCEDURES					- ADVESARY RECOGNITION				
- ADF					- MUTUAL SUPPORT				
- VOR					- FLIGHT MANAGEMENT				
- TACAN					CARRIER QUALIFICATION				
- GCA					- SHIPBOARD PROCEDURES				
- ILS					- PATTERN				
- MISSED APPROACH					- APPROACH				
- ENROUTE NAVIGATION					- MARSHALL PROCEDURES				
FORMATION					- LANDING				
- PARADE					- TRANSITION TO FORWARD				
- COMBAT CRUISE					TACTICS				
- COMBAT SPREAD					- MISSION PLANNING				
- NS FORMATION					- MISSION BRIEFING				
- CROSSOVERS					- MISSION EXECUTION				
- LEAD CHANGE					- ACTIONS IN OBJ AREA				
- TAC TURNS					- LOGISTICS				
- IN-PLACE TURN					AERIAL REFUELING				
- CROSS TURN					- JOIN-UP				
- BREAK TURN					- RENDEZVOUS PROCEDURES				
- PINCH/DIG					- PRE-CONTACT				
- SECTION LANDINGS					- CONTACT				
- DIVISION					- REFUELING POSITION				
CONFINED AREA LANDINGS					- DISCONNECT				
- LANDING ZONE BRIEF					HELO INSERT & EXTRACT				
- ARRROACH					- AERIAL DELIVERY				
- HOVER					- FAST ROPE				
- LANDING					- RAPPELLING				
- OBSTACLE APPROACH					- SPIE RIG				
- OBSTACLE TAKEOFF					- HELOCASTING				

Figure 1-5.-- Pilot Tactical HMH Squadron.

REMARKS:

STRENGTHS:

WEAKNESS:

DATE OF FLIGHT	_____	FLIGHT TIME	_____
TRAINING CODE	_____	LANDINGS	_____
INSTRUCTOR	_____	STUDENT	_____

Figure 1-5.-- Pilot Tactical HMH Squadron (Cont).

CHAPTER 2

CH-53 CREW CHIEF/AERIAL GUNNER/OBSERVER

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*** * N O T E * ***

Aircrews shall include aircrew coordination techniques as part of their brief.

CHAPTER 2

CH-53 CREW CHIEF/AERIAL GUNNER/OBSERVER

200. PROGRAM OF INSTRUCTION (POI) FOR BASIC AND TRANSITION CREW CHIEF

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1	CH-53D or CH-53E Familiarization	FREST
2-5	Ground Schools	Training Squadron
6-17	Combat Capable Phase	Training Squadron
	Combat Ready Phase	Tactical Squadron
	Combat Qualification Phase	Tactical Squadron
	Full-Combat Qualification Phase	Tactical Squadron

201. POI FOR CONVERSION CREW CHIEF

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1	CH-53D or CH-53E Familiarization	FREST
2-4	Ground Schools/OJT	Training Squadron
5-15	Combat Capable Phase	Training Squadron
	Combat Ready Phase	Tactical Squadron
	Combat Qualification Phase	Tactical Squadron
	Full-Combat Qualification Phase	Tactical Squadron

202. POI FOR REFRESHER AND SERIES CONVERSION CREW CHIEF

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1	CH-53D or CH-53E Familiarization	Tactical Squadron
2-4	Ground Schools/OJT	Tactical Squadron
5-12	Combat Capable Phase	Training Squadron
	Combat Ready Phase	Tactical Squadron
	Combat Qualification Phase	Tactical Squadron
	Full-Combat Qualification Phase	Tactical Squadron

203. POI FOR BASIC, TRANSITION, CONVERSION, REFRESHER AND SERIES CONVERSION AERIAL GUNNER/OBSERVER

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1-2	Ground School	Tactical Squadron
3-15	Combat Capable Phase	Tactical Squadron
	Combat Ready Phase	Tactical Squadron
	Combat Qualification Phase	Tactical Squadron
	Full-Combat Qualification Phase	Tactical Squadron

210. GROUND TRAINING COURSES OF INSTRUCTION

<u>COURSE</u>	<u>ACTIVITY</u>
SERE School	Jt Training Course
CH-53D/E Power Plants and Related/Rotors	FREST
Appropriate Aerial Gunnery School	Group/Squadron
Aviation Physiology/Aviation Water Survival	Aviation Physiology Unit

211. AIRCREW TRAINING REFERENCES. Aircrews shall use the following references to ensure safe and standardized training and maintenance procedures, grading criteria, and aircraft operation:

<u>Designator</u>	<u>Title</u>
OPNAVINST 3710.7	NATOPS General Flight and Operations
NAVAIR 01-230-HMA-1	CH-53A/D NATOPS Flight Manual
NAVAIR A1-H53BE-NFM-000	CH-53E NATOPS Flight Manual
MCO P3500.14	T&R Manual, Administrative
MCO P4790.12	Individual Training Standards System (MATMEP)
MCO 3501.4	Marine Corps Combat Readiness and Evaluation System
OPNAVINST 4790.2	Naval Aviation Maintenance Program
Support Package	MAWTS-1 Course Catalog
Support Package	MAWTS-1 Enlisted Aircrew Academic
NAVAIR 00-80T-106	LHA/LPH/LHD NATOPS Manual
NWP-42	Shipboard Helicopter Operations Manual
NWP 55-9-CH53	CH-53 Tactical Manual

212. SQUADRON LEVEL TRAINING. The following references/lectures are covered on an as required basis during the various levels of air/ground training:

NATOPS Manual
CH-53 TAC Manual
Publications and Related Directives
Communications Procedures
Fueling and Servicing
Ground Handling
Helicopter Loading/Equipment Storage
Maintenance Procedures and Troubleshooting
Safety
Survival and First Aid
Aerial Gunnery Training
Aerial Delivery
CH-53 FARP
External Operations
Helicopter Insertion/Extraction Operations
MAGTF Organization/Equipment
MAGTF: The Amphibious Assault
Map Reading
Night Vision Systems
Night Vision Techniques
Rappel Operations
Rope Suspension Training
Search and Rescue
Shipboard Operations and Procedures
Terrain Flight Introduction
Terrain Flight Externals
TRAP
Tactical Briefing/Debriefing
AN/ALE-39 Programming (S)
APR-39 Trainer (15E36) (S)
Helo ESM/ECM Equipment (S)
Countering the FW Threat
Counter Surface-to-Air Threats (S)
Countering the RW Threat (S)
Helicopter Defensive Measures
NBC Threat(S)
Recognition Training
Soviet model IADS
Tactical Formation Maneuvering
Tactical Aircrew Coordination Responsibilities

220. FLIGHT TRAINING FOR BASIC AND TRANSITION CREW CHIEF1. Combat Capable Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>	<u>CRP PERCENT</u>
Familiarization	8	12.0	26.0
Internal Loads	3	4.5	6.0
Formation	2	3.0	4.0
Confined Area Landings	3	4.5	6.0
External Loads	4	5.0	12.0
Terrain Flight	1	1.5	4.0
Combat Capable Check	1	1.5	2.0
TOTAL FOR PHASE	22	32.0	60.0
ACCUMULATION FOR BASIC/TRANSITION POI	22	32.0	60.0

2. Combat Ready Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>	<u>CRP PERCENT</u>
Internal Loads	2	2.0	1.0
Formation	2	3.5	1.0
Confined Area Landings	4	6.5	3.0
Terrain Flight	4	7.0	3.0
External Loads	4	6.0	3.0
Field Carrier Landing Practice	3	3.0	1.5
Air-to-Ground	2	3.0	1.0
Tactics	2	4.0	1.5
TOTAL FOR PHASE	23	35.0	15.0
ACCUMULATION FOR BASIC/TRANSITION POI	45	67.0	75.0

3. Combat Qualification Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>	<u>CRP PERCENT</u>
Confined Area Landings	2	3.5	2.5
Terrain Flight	2	4.0	2.5
External Loads	3	4.5	4.5
Defensive Measures	1	2.0	1.0
Carrier Qualification	3	4.5	3.0
Air-to-Ground Gunnery and Qualification	2	2.0	3.0
Tactics	2	4.0	3.5
TOTAL FOR PHASE	15	24.5	20.0
ACCUMULATION FOR BASIC/TRANSITION POI	60	91.5	95.0

4. Full Combat Qualification Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>	<u>CRP PERCENT</u>
Helicopter Insert/Extract Techniques	3	4.5	1.5/1.5
Internal Loads	1	2.0	0.5/0.0
Defensive Measures	2	1.0	1.0/1.0
Nuclear, Biological, and Chemical	1	1.0	0.5/0.5
Tactics	2	4.0	1.0/1.5
Moving Target Gunnery	1	1.5	0.5/0.5
TOTAL FOR PHASE	10	14.0	5.0/5.0
TOTAL FOR BASIC/TRANSITION POI	70	105.5	100.0

221. FLIGHT TRAINING FOR CONVERSION CREW CHIEF1. Combat Capable Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Familiarization	3	4.5
Internal Loads	1	1.5
Confined Area Landings	2	3.0
External Loads	4	5.0
Combat Capable Check	<u>1</u>	<u>1.5</u>
TOTAL FOR PHASE	11	15.5
ACCUMULATION FOR CONVERSION POI	11	15.5

2. Combat Ready Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Internal Loads	2	2.0
Formation	2	3.5
Confined Area Landings	2	3.5
Terrain Flight	2	3.5
External Loads	4	6.0
Field Carrier Landing Practice	1	1.0
Air-to-Ground	2	3.0
Tactics	<u>1</u>	<u>2.0</u>
TOTAL FOR PHASE	16	24.5
ACCUMULATION FOR CONVERSION POI	27	40.0

3. Combat Qualification Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Confined Area Landings	2	3.5
Terrain Flight	2	4.0
External Loads	3	4.5
Defensive Measures	1	2.0
Carrier Qualification	3	4.5
Air-to-Ground Gunnery and Qualification	2	4.0
Tactics	<u>2</u>	<u>4.0</u>
TOTAL FOR PHASE	15	26.5
ACCUMULATION FOR CONVERSION POI	42	66.5

4. Full Combat Qualification Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Helicopter Insertion/Extraction Techniques	3	4.5
Internal Loads	1	2.0
Defensive Measures	2	1.0
Tactics	1	2.0
Moving Target Gunnery	<u>1</u>	<u>1.5</u>
TOTAL FOR PHASE	8	11.0
TOTAL FOR CONVERSION POI	50	77.5

222. FLIGHT TRAINING FOR REFRESHER CREW CHIEF1. Combat Capable Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Familiarization	3	4.5
Internal Loads	1	1.5
Confined Area Landings	2	3.0
External Loads	4	5.0
Combat Capable Check	<u>1</u>	<u>1.5</u>
TOTAL FOR PHASE	11	15.5
ACCUMULATION FOR REFRESHER POI	11	15.5

2. Combat Ready Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Internal Loads	2	2.0
Formation	2	3.5
Confined Area Landings	4	6.5
Terrain Flight	4	7.0
External Loads	4	6.0
Field Carrier Landing Practice	3	3.0
Air-to-Ground	2	3.0
Tactics	<u>2</u>	<u>4.0</u>
TOTAL FOR PHASE	23	35.0
ACCUMULATION FOR REFRESHER POI	34	50.5

3. Combat Qualification Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Confined Area Landings	2	3.5
Terrain Flight	2	4.0
External Loads	3	4.5
Defensive Measures	1	2.0
Carrier Qualification	3	4.5
Air-to-Ground Gunnery and Qualification	2	2.0
Tactics	<u>2</u>	<u>4.0</u>
TOTAL FOR PHASE	15	24.5
ACCUMULATION FOR REFRESHER POI	49	75.0

4. Full Combat Qualification Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Helicopter Insert/Extract Techniques	3	4.5
Internal Loads	1	2.0
Defensive Measures	2	1.0
Nuclear, Biological, and Chemical	1	1.0
Tactics	2	4.0
Moving Target Gunnery	<u>1</u>	<u>1.5</u>
TOTAL FOR PHASE	10	14.0
TOTAL FOR REFRESHER POI	59	89.0

223. FLIGHT TRAINING FOR SERIES CONVERSION CREW CHIEF1. Combat Capable Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Familiarization	1	1.5
Internal Loads	1	1.5
Confined Area Landings	2	3.0
External Loads	4	5.0
Combat Capable Check	<u>1</u>	<u>1.5</u>
TOTAL FOR PHASE	9	12.5
ACCUMULATION FOR SERIES CONVERSION POI	9	12.5

2. Combat Ready Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Confined Area Landings	2	3.5
Terrain Flight	2	3.5
External Loads	<u>4</u>	<u>6.0</u>
TOTAL FOR PHASE	8	13.0
ACCUMULATION FOR SERIES CONVERSION POI	17	25.5

3. Combat Qualification Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Confined Area Landings	1	2.0
Terrain Flight	1	2.0
External Loads	<u>3</u>	<u>4.5</u>
TOTAL FOR PHASE	5	8.5
ACCUMULATION FOR SERIES CONVERSION POI	22	34.0

4. Full Combat Qualification Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Helicopter Insert/Extract Techniques	3	4.5
Internal Loads	1	2.0
Tactics	<u>1</u>	<u>2.0</u>
TOTAL FOR PHASE	5	8.5
TOTAL FOR SERIES CONVERSION POI	27	42.5

224. FLIGHT TRAINING FOR CREW CHIEF INSTRUCTOR TRAINING

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Formation	2	2.0
Confined Area Landings	2	2.0
Terrain Flight	1	1.0
Externals	2	2.0
IUT STANDARDIZATION CHECKRIDE	<u>1</u>	<u>1.0</u>
TOTAL	8	8.0

225. FLIGHT TRAINING FOR AERIAL OBSERVER CONVERSION TO CREW CHIEF1. Combat Capable Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Familiarization	3	4.5
Internal Loads	3	4.5
Confined Area Landings	2	3.0
External Loads	4	5.0
Terrain Flight	1	2.0
Combat Capable Check	1	1.5
TOTAL FOR PHASE	14	20.5
ACCUMULATION FOR OBSERVER CONVERSION POI	14	20.5

2. Combat Ready Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Internal Loads	2	2.0
Confined Area Landings	1	1.5
Terrain Flight	2	3.5
External Loads	4	6.0
Field Carrier Landing Practice	2	2.0
Tactics	1	2.0
TOTAL FOR PHASE	12	17.0
ACCUMULATION FOR OBSERVER CONVERSION POI	26	37.5

3. Combat Qualification Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Confined Area Landings	1	2.0
Terrain Flight	1	2.0
External Loads	3	4.5
Defensive Measures	1	2.0
Carrier Qualification	3	4.5
Tactics	1	2.0
TOTAL FOR PHASE	10	17.0
ACCUMULATION FOR OBSERVER CONVERSION POI	36	54.5

4. Full Combat Qualification Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Helicopter Insert/Extract Techniques	3	4.5
Internal Loads	1	2.0
Tactics	1	2.0
TOTAL FOR PHASE	5	8.5
TOTAL FOR OBSERVER CONVERSION POI	41	63.0

226. FLIGHT TRAINING FOR BASIC AND TRANSITION AERIAL GUNNER/OBSERVER1. Combat Capable Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>	<u>CRP PERCENT</u>
Familiarization	3	4.5	15.0
Formation	2	3.0	10.0
Confined Area Landings	2	3.0	10.0
External Loads	4	5.0	18.0
Terrain Flight	1	1.5	5.0
Combat Capable Check	<u>1</u>	<u>1.5</u>	<u>2.0</u>
TOTAL FOR PHASE	13	18.5	60.0
ACCUMULATION FOR BASIC/TRANSITION POI	13	18.5	60.0

2. Combat Ready Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>	<u>CRP PERCENT</u>
Internal Loads	2	2.0	1.0
Formation	2	3.5	1.0
Confined Area Landings	4	6.5	3.0
Terrain Flight	4	7.0	3.0
External Loads	4	6.0	3.0
Field Carrier Landing Practice	3	3.0	1.5
Air-to-Ground	2	3.0	1.0
Tactics	<u>2</u>	<u>4.0</u>	<u>1.5</u>
TOTAL FOR PHASE	23	35.0	15.0
ACCUMULATION FOR BASIC/TRANSITION POI	36	53.5	75.0

3. Combat Qualification Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>	<u>CRP PERCENT</u>
Confined Area Landings	2	3.5	2.5
Terrain Flight	2	4.0	2.5
External Loads	3	4.5	4.5
Defensive Measures	1	2.0	1.0
Carrier Qualification	3	4.5	3.0
Air-to-Ground Gunnery and Qualification	2	2.0	3.0
Tactics	<u>2</u>	<u>4.0</u>	<u>3.5</u>
TOTAL FOR PHASE	15	24.5	20.0
ACCUMULATION FOR BASIC/TRANSITION POI	51	78.0	95.0

4. Full Combat Qualification Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>	<u>CRP PERCENT</u>
			<u>53E/53D</u>
Helicopter Insert/Extract Techniques	3	4.5	1.5/1.5
Internal Loads	1	2.0	0.5/0.0
Defensive Measures	2	1.0	1.0/1.0
Nuclear, Biological, and Chemical	1	1.0	0.5/0.5
Moving Target Gunnery	1	1.5	0.5/0.5
Tactics	<u>2</u>	<u>4.0</u>	<u>1.0/1.5</u>
TOTAL FOR PHASE	10	14.0	5.0/5.0
TOTAL FOR BASIC/TRANSITION POI	61	92.0	100.0

227. FLIGHT TRAINING FOR CONVERSION AERIAL GUNNER/OBSERVER1. Combat Capable Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Familiarization	2	3.0
Confined Area Landings	1	1.5
External Loads	4	5.0
Combat Capable Check	<u>1</u>	<u>1.5</u>
TOTAL FOR PHASE	8	11.0
ACCUMULATION FOR CONVERSION POI	8	11.0

2. Combat Ready Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Internal	2	2.0
Formation	2	3.5
Confined Area Landings	2	3.5
Terrain Flight	2	3.5
External Loads	4	6.0
Field Carrier Landing Practice	2	2.0
Air-to-Ground	2	3.0
Tactics	<u>1</u>	<u>2.0</u>
TOTAL FOR PHASE	17	25.5
ACCUMULATION FOR CONVERSION POI	25	36.5

3. Combat Qualification Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Confined Area Landings	2	3.5
Terrain Flight	2	4.0
External Loads	3	4.5
Defensive Measures	1	2.0
Carrier Qualification	2	3.0
Air-to-Ground Gunnery and Qualification	2	2.0
Tactics	<u>2</u>	<u>4.0</u>
TOTAL FOR PHASE	14	23.0
ACCUMULATION FOR CONVERSION POI	39	59.5

4. Full Combat Qualification Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Helicopter Insert/Extract Techniques	3	4.5
Internal Load (TBFDS)	1	2.0
Defensive Measures	2	1.0
Moving Target Gunnery	1	1.5
Tactics	<u>1</u>	<u>2.0</u>
TOTAL FOR PHASE	8	11.0
TOTAL FOR CONVERSION POI	47	70.5

228. FLIGHT TRAINING FOR REFRESHER AERIAL GUNNER/OBSERVER1. Combat Capable Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Familiarization	2	3.0
Confined Area Landings	1	1.5
External Loads	4	5.0
Combat Capable Check	<u>1</u>	<u>1.5</u>
TOTAL FOR PHASE	8	11.0
ACCUMULATION FOR REFRESHER POI	8	11.0

2. Combat Ready Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Formation	2	3.5
Confined Area Landings	4	6.5
Terrain Flight	4	7.0
External Loads	4	6.0
Field Carrier Landing Practice	2	2.0
Air-to-Ground	2	3.0
Tactics	<u>2</u>	<u>4.0</u>
TOTAL FOR PHASE	20	32.0
ACCUMULATION FOR REFRESHER POI	28	43.0

3. Combat Qualification Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Confined Area Landings	2	3.5
Terrain Flight	2	4.0
External Loads	3	4.5
Defensive Measures	1	2.0
Carrier Qualification	2	3.0
Air-to-Ground Gunnery and Qualification	2	2.0
Tactics	<u>2</u>	<u>4.0</u>
TOTAL FOR PHASE	14	23.0
ACCUMULATION FOR REFRESHER POI	42	66.0

4. Full Combat Qualification Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Helicopter Insert/Extract Techniques	3	4.5
Internal Load (TBFDS)	1	2.0
Defensive Measures	2	1.0
Moving Target Gunnery	1	1.5
Tactics	<u>2</u>	<u>4.0</u>
TOTAL FOR PHASE	9	13.0
TOTAL FOR REFRESHER POI	51	79.0

229. FLIGHT TRAINING FOR SERIES CONVERSION AERIAL GUNNER/OBSERVER1. Combat Capable Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Familiarization	1	1.5
Confined Area Landings	2	3.0
External Loads	4	5.0
Combat Capable Check	<u>1</u>	<u>1.5</u>
TOTAL FOR PHASE	8	11.0
ACCUMULATION FOR SERIES CONVERSION POI	8	11.0

2. Combat Ready Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Confined Area Landings	2	3.5
Terrain Flight	2	3.5
External Loads	<u>4</u>	<u>6.0</u>
TOTAL FOR PHASE	8	13.0
ACCUMULATION FOR SERIES CONVERSION POI	16	24.0

3. Combat Qualification Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Confined Area Landings	1	2.0
Terrain Flight	1	2.0
External Loads	<u>3</u>	<u>4.5</u>
TOTAL FOR PHASE	5	8.5
ACCUMULATION FOR SERIES CONVERSION POI	21	32.5

4. Full Combat Qualification Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Helicopter Insert/Extract Techniques	3	4.5
Internal Loads (TBFS)	1	2.0
Tactics	<u>1</u>	<u>2.0</u>
TOTAL FOR PHASE	5	8.5
TOTAL FOR SERIES CONVERSION POI	26	41.0

229.1. EVALUATION FLIGHT

<u>STAGE</u>	<u>FLIGHTS</u>	<u>HOURS</u>
Annual NATOPS Evaluation	<u>1</u>	<u>1.5</u>
TOTAL	1	1.5

230. FLIGHT PERFORMANCE REQUIREMENTS

1. Purpose. To become familiar with aircraft limitations, operating and emergency procedures; demonstrate a knowledge of the NATOPS Manual, the ability to use all maintenance publications and safety regulations pertinent to flight operations and maintenance procedures.

2. General

a. This Manual generalizes mission guidance to allow for varying local conditions and allows this Manual to remain unclassified. DC AVN and CG MCCDC encourage squadrons to use the full range of tactics in the tactical manuals and adopt the latest developed and proven tactics.

b. This Manual designs the Combat Capable training phase for an instructor and trainee to maximize training and to minimize syllabus support hours.

c. All events shall terminate with a comprehensive debrief with emphasis on aircrew performance using all evaluation techniques.

d. Aircrew shall fly events annotated with an "N" at least 30 minutes after official sunset. Aircrew may fly events annotated with "(N)" at night.

e. Aircrew shall fly events annotated with an "NS" with Night Vision Goggles for the entire flight. Aircrew may fly events annotated with "(NS)" using NVDs.

f. A Crew Chief Under Instruction (CCUI) shall complete the appropriate Fleet Replacement Enlisted Skills Training (FREST) ground school instruction prior to commencement of flight training.

3. Syllabus Assignment. Basic and Transition crew chiefs (CC) and aerial gunner/observers (AG/O) will be assigned to fly the entire syllabus. Conversion, refresher, and series conversion (i.e. 53E to 53D) CCs and AGOs will fly those events designated by a "C", "R" or "S" respectively in the flight description (CC center of page and AG/O to the right). AGOs converting to secondary MOS CC shall complete those events designated by an "O." AG/Os that are NATOPS designated and are converting to secondary MOS CCs will fly all prescribed 100 series flights with an appropriate squadron level Crew Chief Instructor (CCI). A CCI is considered qualified upon completion of appropriate 500 level series training IAW this Chapter and/or the MAWTS-1 Course Catalog. Previous AG/O designations (TERF, NSQ, DM) do not convert to CC qualifications. The squadron training officer shall enter all Aircrew Training Forms in section 3 of the APR for all flights designated by "C", "R" or "O" in the flight description. These Aircrew Training Forms will replace Aircrew Training Forms previously entered in section 3. Figures 2-1/2-2 show refly interval and combat readiness percentages.

4. Prior Qualification. Previously qualified CH-53 CCs and AGOs returning from a non-flying tour will fly the appropriate Refresher POI.

5. Aircrew Training Events

a. All CCs and AGOs shall have an evaluation form filled out upon completion of the following:

(1) Combat Capable Check (CCX-191). A designated FRS CCI shall evaluate the CCX-191. This event is considered the initial NATOPS evaluation.

(2) Annual NATOPS Check (EVAL-600). A designated NATOPS instructor/assistant or evaluator shall evaluate the EVAL-600.

(3) Any initial flight not requiring an instructor. A CC who is proficient in that sortie shall evaluate and complete an Aircrew Training Form.

(4) Any sortie that requires an NSI, AGI, TERFI or DMI.

b. If the commanding officer has waived or deferred a syllabus sortie, the squadron training officer shall place a waiver or deferment letter in section 3 of the APR.

c. All ATFs shall annotate the appropriate crew position under instruction.

6. Aircrew Coordination. Aircrew shall brief techniques and aspects of aircrew coordination for all flights and/or events. The CC will always be alert for other aircraft or obstacles to flight. He will supervise internal loading at the direction of the pilot, verbally direct the pilot during external hookups and releases, and supervise the embarkation and debarkation of passengers. The CC may detect system failures before the pilot and must inform him of potential malfunctions. He can effect minor airborne repairs and supervise any additional crew members that the mission may require.

231. COMBAT CAPABLE PHASE

1. Familiarization (FAM)

a. Purpose. To familiarize the aircrew with CH-53 operations and procedures.

b. General

(1) Aircrew may fly these flights in conjunction with the pilot syllabus. All NS flights must be flown under ambient light conditions of .0022 LUX or greater. The aircrew should complete all appropriate familiarization stage flights prior to flying any subsequent flights.

(2) Instructors shall be a CCI or CCNSI for FAM-121 if flown with NVDs, FAM-122, FORM-153, CAL-163 EXT-171, and EXT-173.

c. Crew Requirement. CCI/CCUI or CCI/AOUI. AOUI flies FAM-110, FAM-120, and FAM-122.

d. Training Prerequisite. Aircrew must complete their physical, Naval Aviation Water Survival Training Program (NAWSTP), Naval Aviation Physiology Training Program (NAPTP) prior to FAM-110.

e. Ground Training

(1) Publications and related directives.

(2) Safety.

(3) Ground handling.

(4) Aircrew Coordination Training.

(5) Night Imaging and Threat Evaluation (NITE) Lab Instruction.

(6) Fueling and servicing.

(7) Helicopter loading and equipment storage.

(8) Maintenance procedures and troubleshooting.

f. Flight Training. (8 Flights, 12.0 Hours).

FAM-110 1.5 C,R,S 1 CH-53

Goal. Introduce CH-53 aircrew duties.

RequirementDiscuss:

Engine compartment fire on the ground.
 APP fire.
 Fuselage fire.
 Electrical fire.
 Engine post shutdown fire.
 Fire fighting equipment operation.
 Hand and arm signals for fires.

Demonstrate:

System troubleshooting.
 Proper use of aircrew pocket checklist.

Introduce:

Preflight.
 Starting.
 Taxi directions.
 Lookout doctrine.
 Servicing.
 Post flight.
 Turnaround inspection.
 Emergency egress procedures.

Performance standards. Exhibit basic understanding of CH-53 aircrew duties.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

FAM-111

1.5

1 CH-53

Goal. Practice CH-53 CC duties.

RequirementDiscuss:

Ramp operation.
 Single, dual, and total engine failures on takeoff and landing.
 Emergency water operation.
 Flotation equipment and inflation procedures.
 Ditching/abandoning aircraft.
 Search and rescue scanning and sighting techniques.
 Vibrations.
 Landing gear system failure.

Introduce:

Blade and pylon fold procedures.
 Systems troubleshooting.
 Utility hoist operation, if equipped.
 System function checks.

Practice:

Preflight and servicing.
 Turn-up.
 Taxi directions.
 Lookout doctrine.
 Shut down.
 Post flight.

Performance Standards. Demonstrate practice of CH-53 CC duties.

Prerequisite. N/A.

Ordnance. N/A.

External Syllabus Support. N/A.

FAM-112

1.5 O 1 CH-53

Goal. CCUI practices CH-53 CC duties.

Requirement

Review:

Aircrew Pocket Checklist Emergency Procedures.
Preflight and servicing.
Turn-up.
Taxi directions.
Lookout doctrine.
Shut down.
Post flight.

Performance Standards. Demonstrate practice of CH-53 CC duties IAW applicable NATOPS.

Prerequisite. N/A.

Ordnance. N/A.

External Syllabus Support. N/A.

FAM-113

1.5 O 1 CH-53

Goal. CCUI reviews CH-53 CC duties.

Requirement

Review:

Emergency procedures.
Duties of the CC.

Performance Standards. Demonstrate basic aircrew coordination skills.

Prerequisite. N/A.

Ordnance. N/A.

External Syllabus Support. N/A.

FAM-119

1.5 1 CH-53 (N)

Goal. Progress review of basic CC skills.

Requirement

Discuss:

Aircraft refueling procedures.
Aircraft tiedown.
Turn-up and shutdown procedures.
Emergency procedures.

Systems troubleshooting.

Performance Standards. Demonstrate basic CC skills.

Prerequisite. FAM-113.

Ordinance. N/A.

External Syllabus Support. N/A.

FAM-120

1.5 1 CH-53 N

Goal. Introduce aircrew duties during night operations in the CH-53.

Requirement

Discuss:

CH-53 lighting systems.

Night vision techniques as contained in CH-53 TAC Manual.

Airfield lighting.

Demonstrate:

Use of cargo tie down lights.

Cargo loading lights.

Emergency exit lights.

Cabin lighting.

Introduce:

Night preflight.

Turn-up.

Taxi.

Lookout doctrine.

Shutdown.

Post flight procedures.

Performance Standards. Demonstrate a basic knowledge of night operations in the CH-53.

Prerequisite. FAM-110, FAM-111, FAM-112 and FAM-113.

Ordinance. N/A.

External Syllabus Support. N/A.

FAM-121

1.5 C,R 1 CH-53 N (NS)

Goal. CCUI review CC duties at night.

Requirement

Discuss:

Cabin heater function.

Chill factor.

Review:

Night preflight.

Turn-up.

Taxi.

Lookout doctrine.

Shutdown.

Post flight procedures.

Performance Standards. Upon completion of event CCUI shall demonstrate proficiency of above listed items.

Prerequisite. FAM 113.

Ordinance. N/A.

External Syllabus Support. N/A.

FAM-122

1.5 O,C,R 1 CH-53 N NS

Goal. Introduce the aircrew to NVD operations.

Requirement

Discuss:

NVDs and aircrew coordination as contained in CH-53 TAC Manual.

Demonstrate:

Use of NVD compatible cockpits.
Effects of cultural/artificial lighting on NVDs.

Introduce:

NVDs.
Ground relationship.
Obstacle clearance.
Distance estimation.
Depth perception.
Shadowing effects.

Performance Standards. Apply basic NVD operational skills as demonstrated in the NITE LAB.

Prerequisite. FAM-113 and aircrew shall complete the NITE Lab.

Ordinance. N/A.

External Syllabus Support. N/A.

2. Internal Loads (INT)

a. Purpose. To introduce CC duties in loading, securing and unloading passengers, cargo and vehicles.

b. General

(1) Aircrew may fly these flights in conjunction with any stage of the pilot syllabus.

(2) Instructor shall be a CCI or CCNSI if NVDs are used.

c. Crew Requirement. CCI/CCUI. AOUI does not fly these events.

d. Ground Training. Appropriate sections of the A1-H53BE-GLG-000 (Cargo Loading Manual), NATOPS Flight Manual, and helicopter loading and equipment storage.

e. Flight Training. (3 Flights, 4.5 Hours).

INT-1351.5 O,C,R,S 1 CH-53

Goal. Introduce CC duties during flights carrying internal cargo and/or vehicles.

RequirementDiscuss:

Safety regulations for loading and unloading cargo and vehicles.

Introduce:

Use of the cargo winch.
Cargo and vehicle loading.
Cargo Tiedown.
Cargo unloading procedures.

Review:

Ramp operation.

Performance Standards. Demonstrate basic knowledge of cargo winch and loading systems IAW the applicable Cargo Loading Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

INT-1361.5 O 1 CH-53

Goal. Review CC duties during flights carrying internal cargo and/or vehicles.

RequirementDemonstrate:

Use of the cargo winch.
Cargo and/or vehicle loading.
Cargo and/or vehicle unloading.

Performance Standards. Demonstrate proficiency using the cargo winch and loading systems IAW applicable NATOPS and Cargo Loading Manual.

Prerequisite. INT-135.

Ordinance. N/A.

External Syllabus Support. N/A.

INT-1371.5 O 1 CH-53 (N)(NS)

Goal. Introduce CC duties during passenger operations.

RequirementDiscuss:

Safety regulations.
Required flight/safety equipment for passengers.
Troops and litter patients over land and water.
MEDEVAC mission categories.

Demonstrate:

Visual Aural Debark System (CH-53D only).

Introduce:

Passenger briefing.
Embarking and debarking procedures.
Proper litter attachment and securing.

Review:

Emergency passenger egress.
Abandon and ditching aircraft procedures.

Performance standard. Conduct basic crew and passenger brief IAW the Aircrew Pocket Checklist.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

3. Formation (FORM)

a. Purpose. To familiarize the aircrew with responsibilities during formation flight with emphasis on aircrew coordination.

b. General

(1) Aircrew may fly this stage in conjunction with the formation stage of the pilot syllabus.

(2) Instructor shall be a CCI or CCNSI for FORM-153.

c. Crew Requirement. CCI/CCUI or CCI/AOUI. AOUI flies FORM-152 and FORM-153.

d. Flight Training. (2 Flights, 3.0 Hours).

FORM-152 1.5 2 CH-53

Goal. Introduce aircrew responsibilities during formation flight.

RequirementDiscuss:

Parade position.
Formations.
Closure rate.
Hand and arm signals.
In-flight emergency procedures.
Standard terminology.

Performance Standards. Demonstrate a basic understanding and skill of formation flying IAW applicable NATOPS.

Prerequisite. FAM-113.

Ordinance. N/A.

External Syllabus Support. N/A.

FORM-153 1.5 2 CH-53 N NS

Goal. Introduce aircrew responsibilities during NVD formation flight.

Requirement

Discuss:

Closure rate.
Aircraft lighting.
Light signals.
Lookout responsibilities.
Target fixation.
Standard terminology.
NVD considerations.

Performance Standards. Demonstrate basic understanding and skill of NVD formation flying IAW applicable NATOPS.

Prerequisite. FAM-122.

Ordinance. N/A.

External Syllabus Support. N/A.

4. Confined Area Landings (CAL)

a. Purpose. To introduce the aircrew to duties when landing in confined areas.

b. General

(1) Aircrew may fly this stage in conjunction with the CAL stage in the pilot syllabus.

(2) Instructor shall be a CCI or CCNSI for CAL-163.

c. Crew Requirement. CCI/CCUI or CCI/AOUI. AOUI flies CAL-161 and CAL-163.

d. Ground Training

(1) Survival and First Aid.

(2) Communications Procedures.

e. Flight Training. (3 Flights, 4.5 Hours).

CAL-161 1.5 1 CH-53

Goal. Introduce aircrew responsibilities during CALs.

Requirement

Discuss:

CALs.
Aircrew coordination.

Introduce:

Lookout doctrine.
Aircrew coordination.
Main rotor, tail rotor, and aircraft fuselage clearances.

Obstacle clearance during the approach, landing, and takeoff.
 Suitability of LZ terrain.
 Drift correction calls to the pilot prior to aircraft touchdown.

Performance Standards. Demonstrate basic knowledge of CALs IAW applicable NATOPS.

Prerequisite. FAM-113.

Ordinance. N/A.

External Syllabus Support. N/A.

CAL-162

1.5 O,C,R,S 1 CH-53

Goal. Practice CC responsibilities during CALs.

Requirement

Review:

CAL-161.

Discuss:

Landing gear system failures.
 Vibrations.
 Engine failures in flight.

Performance Standards. Demonstrate the ability to perform CALs IAW applicable NATOPS.

Prerequisite. CAL-161.

Ordinance. N/A.

External Syllabus Support. N/A.

CAL-163

1.5 O,C,R,S 1 CH-53 N NS

Goal. Introduce aircrew responsibilities during CALs at night utilizing NVDs.

Requirement

Discuss:

NVDs.
 Helicopter preparation.
 LZ lighting.
 Terrain.
 Ground relationship.
 Obstacle clearance.
 Distance estimation.
 Depth perception.
 Shadowing effects.
 Drift calls.
 Effects of snow, dust and rain.

Performance Standards. Demonstrate basic aircrew responsibilities during CALs utilizing NVDs IAW applicable NATOPS and TAC Manual.

Prerequisite. FAM-122 and CAL-161.

Ordinance. N/A.

External Syllabus Support. N/A.

5. External Loads (EXT)

a. Purpose. To develop skills necessary for external cargo operations.

b. General

(1) Aircrew may fly this stage in conjunction with the external stage of the pilot syllabus.

(2) Instructor shall be a CCI or CCNSI for EXT-171 and 173.

c. Crew Requirement. CCI/CCUI or CCI/AOUI. AOUI flies all four EXT flights.

d. Ground Training. Consult MCRP 4-23E Multiservice Helicopter Sling Load Manual for Basic Operations and Equipment (Vol.1), Single Point Load Rigging Procedures (Vol.2) and Dual Point Load Rigging Procedures (Vol. 3).

e. Flight Training. (4 Flights, 5.0 Hours).

EXT-170 1.0 O,C,R,S 1 CH-53

Goal. Introduce aircrew duties and terminology used during single point external cargo operations.

Requirement

Discuss:

Crew Coordination.
External procedures.
HST considerations.
Standardized terminology.
Single point cargo hook system.
Cargo hook control panel.
Aircrew's portable pendant control.
Cargo hook emergency release handle(53D).
Static discharge precautions.
Load rigging.
Emergency cargo release.

Demonstrate:

Standardized terminology.
Cargo hook setup.
Hand and arm signals.

Introduce:

Standardized voice commands.
Loss of communication procedures.
Hookup and drop procedures.

Performance Standards. Perform three basic single point external hookups and releases IAW applicable NATOPS.

Prerequisite. FAM-113 and CAL-161.

Ordinance. N/A.

External syllabus support. HST, certified load.

EXT-171 1.0 O,C,R,S 1 CH-53 N NS

Goal. Introduce aircrew duties and terminology used during single point external cargo operations utilizing NVDs.

Requirement

Review:

EXT-170.
FAM-122.

Discuss:

NVD considerations.
Safety precautions.
Use of hover light.
External cargo lighting patterns.

Introduce:

Use of the hover light.
Use of Chem lights to mark cargo hook and load.
Hookup and drop procedures with NVDs.

Performance Standards. Perform three basic single point external hookups and releases while utilizing NVDs IAW applicable NATOPS.

Prerequisite. FAM-122 and EXT-170.

Ordinance. N/A.

External Syllabus Support. HST, certified load and LZ illumination (Chem lights).

EXT-172 1.5 O,C,R,S 1 CH-53

Goal. Review aircrew duties during external cargo operations in the CH-53D. Introduce aircrew duties and terminology used during dual point external operations in the CH-53E.

Requirement

Review:

EXT-170 (53D).

Discuss:

Proper preflight of dual point system.
Types of slings.
Crew coordination.
External procedures.
HST considerations.
Standardized terminology.
Dual point cargo hook system.
Cargo hook control panel.
Aircrew portable pendant control.
Cargo hook emergency release handle.
Static discharge precautions.
Load rigging.
Emergency cargo release.

Introduce:

Dual point external load hookup and release procedures.

Performance Standards. Perform three basic dual point hookups and releases IAW applicable NATOPS. For CH-53D review performance standards for the EXT-170.

Prerequisite. FAM-113 and CAL-161.

Ordinance. N/A.

External syllabus support. HST, certified load.

EXT-173

1.5 O,C,R,S 1 CH-53 N NS

Goal. Review aircrew duties during external cargo operations at night in the CH-53D. Introduce aircrew duties and terminology used during night dual point external operations in the CH-53E.

Requirement

Review:

EXT-172.

Discuss:

NVD considerations.

Safety precautions.

Use of hover light.

External cargo lighting patterns.

Introduce:

Use of the hover light.

Use of Chem lights to mark cargo hook and load.

Hookup and drop procedures with NVDs.

Performance Standards. Perform three basic dual point external hookups and releases utilizing NVDs IAW applicable NATOPS. For CH-53D review performance standards for EXT-171.

Prerequisite. FAM-122 and EXT-172.

Ordinance. N/A.

External Syllabus Support. HST, certified load.

6. Terrain Flight (TERF)

a. Purpose. To introduce skills necessary to perform TERF maneuvers safely; emphasize the importance of crew coordination, comfort level, and common terminology.

b. General

(1) Rules of conduct per T&R Manual, Administrative.

(2) Instructor shall be CCI or TERFI.

c. Crew Requirement. CCI/CCUI or CCI/AOUI. AOUI flies TERF-180.

d. Ground Training. MAWTS-1 Terrain Flight Introduction lecture prior to this stage of training.

e. Flight Training. (1 Flight, 1.5 Hours).

TERF-180 1.5 O 1 CH-53

Goal. Introduce the aircrew to maneuvers, clearances, and navigation while flying in the TERF environment.

Requirement

Discuss:

Crew comfort levels.
Aircrew coordination.
Lookout doctrine.
Terminology.
ICS procedures.
Aircraft clearances.
Emergency procedures.
TERF maneuvers.
Navigation.

Introduce:

Low level and contour flight.

Performance Standards. Perform basic TERF maneuvers and navigation while in the TERF environment IAW applicable NATOPS and TAC Manual.

Prerequisite. FAM-113.

Ordinance. N/A.

External Syllabus Support. N/A.

7. Combat Capable Evaluation Flight (EVAL)

a. Purpose. To demonstrate proficiency in performing duties as a Combat Capable CC or AO per criteria contained in the appropriate CH-53 NATOPS Flight Manual and OPNAVINST 3710.7.

b. General

(1) A qualified CCNI shall evaluate this flight.

(2) The CCUI or AOUI shall complete a H-53 NATOPS Flight Manual Open and Closed book examination prior to the Combat Capable check. Upon completion of this flight, the student will be NATOPS qualified as a CC or AO.

c. Crew Requirement. FRSCCI/CCUI or CCNI/AOUI. AOUI flies CCX-191.

d. Ground/Academic Training. Review of NATOPS and Aircrew Pocket Checklist.

e. Flight Training. (1 Flight, 1.5 Hours).

CCX-191 1.5 O,C,R,S 1 CH-53 (N)(NS)

Goal. Evaluate systems knowledge of the CH-53 and the capability to perform duties as a Combat Capable CC or AO.

Requirement

Discuss:

Crew brief.

Demonstrate:

Aircraft system knowledge.
 Pre/post flight procedures.
 In-flight procedures.
 Emergency procedures.
 Aircrew coordination.

Performance Standards. Demonstrate proficiency for the applicable crew position as stated in the applicable NATOPS and the OPNAVINST 3710.7.

Prerequisite. All prior applicable 100 level flights.

Ordinance. N/A.

External Syllabus Support. As required.

232. COMBAT READY PHASE. Aircrew undergoing instruction in this phase must have completed the MAWTS-1 Course Catalog Academic Support Package lectures applicable to this phase of training prior to conducting NS events. NS rules of conduct will be per T&R Manual, Administrative. Aircrew will fly all NS events in this phase under ambient light conditions of .0022 LUX or greater. The aircrew under instruction is considered NSQ HLL (able to transport troops) when the following six events have been completed: FORM-211, CAL-222, CAL-223, TERF-232, TERF-233, and TAC-291. These events require a CCNSI for all initial qualifications. Initial FCLP-273 may be flown under LLL conditions provided aircrew under instruction is NSQ HLL.

1. Internal Loads (INT)

a. Purpose. To refine CC duties in loading, securing, unloading passengers, cargo and vehicles.

b. Crew Requirement. CC or CC/CCUI. INT-200/201 is not required for AOUI.

c. Ground/Academic Training. Review of NATOPS procedures for internal loads and Cargo Loading Manual.

d. Flight Training. (2 Flights, 2.0 Hours).

INT-200 1.0 O,C,R 1 CH-53 (N)(NS)

Goal. Practice CC duties when carrying internal cargo and/or vehicles.

Requirement

Review:

INT-135.
 INT-136.
 Cargo and/or vehicle loading, securing, and unloading procedures.

Discuss:

Safety precautions and procedures used when transporting dangerous cargo petroleum, oxygen, lubricants (POL), liquid oxygen (LOX), pyrotechnics, and class V cargo (ammunition), etc.

Performance Standards. Demonstrate cargo and/or vehicle loading procedures IAW the Cargo Loading Manual and applicable NATOPS.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. Applicable cargo and/or vehicle(s).

INT-201 1.0 O,C,R 1 CH-53 (N)(NS)

Goal. Practice passenger briefing, embarking, securing, and debarking procedures.

Requirement

Review:

INT-137.

Procedures for embarking, securing, and debarking of passengers.

Discuss:

Problems encountered while embarking, securing and debarking passengers.

Emergency passenger egress.

Abandon/ditching aircraft.

Performance Standards. Demonstrate passenger briefing, embarking, securing, and debarking procedures IAW applicable NATOPS.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

2. Formation (FORM)

a. Purpose. To review aircrew responsibilities during formation flight and introduce responsibilities of tactical formation flight, day and night.

b. General

(1) A CCNSI is required on initial FORM-211.

c. Crew Requirement. CC/AO, CC/CCUI or CC/AOUI. AOUI flies FORM-210 and 211.

d. Ground/Academic Training. Review of NATOPS procedures for FORM and TAC Manual techniques.

e. Flight Training. (2 Flights, 3.5 Hours).

FORM-210 1.5 C,R 2 CH-53

Goal. Demonstrate aircrew duties during basic formation flight and introduce tactical formation flight.

Requirement

Review:

Formation.

Closure rate.

Lead changes (to include form lead/tactical lead).

Aircrew coordination.

Loss of visual contact with wingman.

Comfort levels.

Emergency procedures.

Section takeoffs, landings, approaches and waveoff's.

Introduce:

Section tactical formation.

Performance Standards. Demonstrate proficient knowledge of aircrew considerations during formation flight IAW applicable NATOPS. Practice aircrew duties during tactical formation flight IAW the applicable NATOPS and TAC Manual.

Prerequisite. N/A

Ordinance. N/A

External Syllabus Support. N/A

FORM-211

2.0 C,R 2 CH-53 N NS

Goal. Demonstrate aircrew duties during basic NVD formation flight and introduce NVD tactical formation flight.

Requirement

Review:

Formations.

Closure rate.

Lead changes(to include form lead/tactical lead).

Aircrew coordination.

Loss of visual contact with wingman.

Comfort level.

Emergency procedures.

Introduce:

Section NVD Tactical Formation.

Performance standards. Demonstrate proficient knowledge of aircrew considerations during basic NVD formation flight IAW the applicable NATOPS. Practice aircrew duties during NVD tactical formation flight IAW the applicable NATOPS and TAC Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

3. Confined Area Landings (CAL)

a. Purpose. To review aircrew responsibilities during CALs and introduce CALs with multiple aircraft during day and night.

b. General

(1) A CCNSI is required on initial CAL-222/223.

c. Crew Requirement. CC, CC/CCUI or CC/AOUI. AG/AO flies all events. AO required for CAL-222 and CAL-223 if not an instructional flight.

d. Ground/Academic Training. Review of NATOPS procedures for CALs.

e. Flight Training. (4 Flights, 6.5 Hours).

CAL-220

1.5 O,R 1 CH-53

Goal. Introduce and practice CALs using tactical approaches.RequirementDiscuss:

CALs.
 Aircrew coordination.
 Lookout doctrine.
 Aircraft clearances.
 Terrain suitability.
 Drift correction.

Introduce:

Tactical Approaches.

Performance Standards. Perform CALs doing tactical approaches IAW the applicable NATOPS and TAC Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

CAL-221

1.5 C,R,S 2 CH-53

Goal. Introduce and practice tactical section CALs.RequirementDiscuss:

CALs.
 Aircrew coordination.
 Lookout doctrine.
 Aircraft clearances.
 Terrain suitability.
 Drift correction.
 Tactical approaches.

Introduce:

Section takeoffs, approaches, and landings to a CAL site.

Performance Standards. Demonstrate performance of aircrew duties during tactical section CALs IAW the applicable NATOPS and TAC Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

CAL-222

1.5 R 1 CH-53 N NS

Goal. Introduce and practice CALs using NVDs.RequirementReview:

CALs.
 Aircrew coordination.

Lookout doctrine.
 Aircraft clearances.
 Terrain suitability.
 Drift correction.
 Dark adaptation.
 NVD failures.
 Aircraft lighting.

Discuss:

Depth perception.
 Possible reduced visibility.
 Obstacle clearance.

Performance Standards. Practice aircrew responsibilities during night CALs while using NVDs IAW with applicable NATOPS.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

CAL-223

2.0

C,R,S 2 CH-53 N NS

Goal. Introduce and practice section CALs using NVDs.

Requirement

Review:

NVD CALs.
 Aircrew coordination.
 Lookout doctrine.
 Aircraft clearances.
 Terrain suitability.
 Drift correction.
 Dark adaptation.
 NVD failures.
 Aircraft lighting.
 Depth perception.
 Possible reduced visibility.
 Obstacle clearance.

Introduce:

NVD Section CALs.

Performance Standards. Practice aircrew responsibilities during NVD section CALs IAW applicable NATOPS.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

4. Terrain Flight (TERF)

a. Purpose. To enhance aircrew responsibilities and lookout doctrine with TERF maneuvers/navigation and introduce section maneuvering in the day and night TERF environment.

b. General

(1) Currency restrictions per T&R Manual, Administrative. Aircrew is considered TERF qualified at the completion TERF-233.

(2) A CCTERFI is required for initial TERF-230/231 and a CCNSI is required for initial TERF-232/233.

c. Crew Requirement. CC/AO, CC/CCUI or CC/AOUI.

d. Ground/Academic Training. Consult the MAWTS-1 Course Catalog for the recommended lecture in the Academic Support Package applicable to this stage of training.

e. Flight Training. (4 Flights, 7.0 Hours). AOUI flies TERF-230/231/232/233.

<u>TERF-230</u>	<u>1.5</u>	<u>R 1 CH-53</u>
<u>Goal</u> . Review maneuvers and clearance while flying in a TERF environment.		
<u>Requirement</u>		
<u>Review</u> :		
Low level and contour flight.		
<u>Discuss</u> :		
Crew comfort levels.		
Aircrew coordination.		
Lookout doctrine.		
Terminology.		
ICS procedures.		
Obstacle clearance.		
Emergency procedures.		
TERF maneuvers.		
Navigation.		
<u>Performance Standards</u> . Perform TERF maneuvers and maintain aircraft clearance IAW the applicable NATOPS and TAC Manual.		
<u>Prerequisite</u> . CAL-220.		
<u>Ordinance</u> . N/A.		
<u>External Syllabus Support</u> . N/A.		

<u>TERF-231</u>	<u>1.5</u>	<u>O,C,R,S 2 CH-53</u>
<u>Goal</u> . Introduce maneuvers and clearance for a section of aircraft in the TERF environment.		
<u>Requirement</u>		
<u>Review</u> :		
FORM-210.		
TERF-230.		

Discuss:

Crew comfort levels.
 Aircrew coordination.
 Lookout doctrine.
 Terminology.
 ICS procedures.
 Aircraft clearance.
 Multiple aircraft operations.

Performance Standards. Perform TERF maneuvers in a section while in the TERF environment IAW the applicable NATOPS and TAC Manual.

Prerequisite. CAL-221, TERF-230.

Ordinance. N/A.

External Syllabus Support. N/A.

TERF-232

2.0 R 1 CH-53 N NS

Goal. Introduce maneuvers and clearance while flying in a TERF environment using NVDs.

RequirementReview:

CAL-222.
 TERF-230.

Discuss:

HLL NVD considerations.
 Aircraft lighting.
 Crew comfort levels.
 Aircrew coordination.
 Lookout doctrine.
 Terminology.
 ICS procedures.
 Obstacle clearance.
 Emergency procedures.

Performance Standards. Perform TERF maneuvers while in the TERF environment using NVDs in a HLL condition IAW applicable NATOPS and TAC Manual.

Prerequisite. CAL-222 and TERF-230.

Ordinance. N/A.

External Syllabus Support. N/A.

TERF-233

2.0 O,C,R,S 2 CH-53 N NS

Goal. Review maneuvers and clearance for a section of aircraft in the TERF environment using NVDs.

RequirementReview:

CAL-223.
 TERF-232.

Discuss:

HLL NVD considerations.
 Aircraft lighting.
 Crew comfort levels.
 Aircrew coordination.
 Lookout doctrine.
 Terminology.
 ICS procedures.
 Aircraft clearance.
 Emergency procedures.
 Multiple aircraft operations.

Performance Standards. Perform TERF maneuvers for a section while in the TERF environment using NVDs in a HLL condition IAW the applicable NATOPS and TAC Manual.

Prerequisite. CAL-223, TERF-231 and TERF-232.

Ordinance. N/A.

External Syllabus Support. N/A.

5. External Loads (EXT)

a. Purpose. To develop skills necessary for external loads in confined areas.

b. General

(1) Aircrew may fly these flights in conjunction with the pilot syllabus.

(2) A CCNSI is required for initial EXT-242/243.

c. Crew Requirement. CC/AO, CC/CCUI or CC/AOUI. AOUI flies all four EXT events.

d. Ground/Academic Training. CC should review MCRP 4-23E Multiservice Helicopter Sling Load Manual for Basic Operations and Equipment.

e. Flight Training. (4 Flights, 6.0 Hours).

EXT-240

1.5

O,C,R,S 1 CH-53

Goal. Practice single point externals.

Requirement

Review:

EXT-170.

Discuss:

Crew coordination.
 External procedures.
 HST considerations.
 Standardized terminology.
 Single point cargo hook system.
 Cargo hook control panel.
 Aircrew portable pendant control.
 Cargo hook emergency release handle(CH-53D).
 Static discharge precautions.
 Load rigging.
 Emergency cargo release.

Demonstrate:

Standardized terminology.
Cargo hook setup.
Hand and arm signals.

Performance Standards. Perform single point external hookups and releases with proficiency IAW applicable NATOPS.

Prerequisite. CAL-220.

Ordinance. N/A.

External syllabus support. HST, certified load.

EXT-241

1.5 O,C,R,S 1 CH-53

Goal. Practice dual point external operations (53E).
Practice single point external operations (53D).

RequirementReview:

EXT-172 (53E).
EXT-240.

Discuss:

Proper preflight of dual point system.
Types of slings.
Crew Coordination.
External procedures.
HST considerations.
Standardized terminology.
Dual point cargo hook system.
Cargo hook control panel.
Aircrew portable pendant control.
Cargo hook emergency release handle.
Static discharge precautions.
Load rigging.
Emergency cargo release.

Performance Standards. Perform dual point hookups and releases with proficiency IAW the applicable NATOPS. For CH-53D review performance standards for the EXT-240.

Prerequisite. CAL-220.

Ordinance. N/A.

External syllabus support. HST, certified load.

EXT-242

1.5 O,C,R,S 1 CH-53 N NS

Goal. Practice single point external operations utilizing NVDs.

RequirementReview:

HLI NVD considerations.
Safety precautions.
External cargo lighting patterns.
Use of Chem lights on external pendant and the external load.

Blowing debris.
 Load rigging.
 Obstacle clearance on approach to and departure from the drop zone.

Discuss:

Aircrew coordination.
 Flight with single point external loads.
 Load stability.
 Standardized terminology.
 HLL NVD considerations.
 Load rigging.

Performance Standards. Demonstrate proficiency of single point external operations using NVDs in a HLL condition as outlined in the applicable NATOPS.

Prerequisite. CAL-222 and EXT-240.

Ordinance. N/A.

External Syllabus Support. HST, certified load.

EXT-243

1.5 O,C,R,S 1 CH-53 N NS

Goal. Practice dual point external operations utilizing NVDs (53E). Practice single point external operations utilizing NVDs (53D).

Requirement

Review:

Safety precautions.
 External cargo lighting patterns.
 Use of Chem lights on external pendant and the external load.
 Blowing debris, rotor wash.
 Load rigging.
 Obstacle clearance on approach to and departure from the drop zone.

Discuss:

HLL NVD considerations.
 Aircrew coordination.
 Flight with dual point external loads.
 Load stability.
 Standardized terminology.
 Load rigging.

Performance Standards. Demonstrate proficiency of dual point external operations using NVDs in a HLL condition IAW applicable NATOPS.

Prerequisite. CAL-222, EXT-241.

Ordinance. N/A.

External Syllabus Support. HST, certified load.

6. Field Carrier Landing Practice (FCLP)

a. Purpose. To develop procedures and aircrew coordination required for shipboard operations.

b. General. Discuss and become familiar with all aspects of shipboard operations and aircrew coordination applicable to the carrier qualification stage as described in the appropriate CH-53 NATOPS Flight Manual, NWP-42, the LHA/LPH/LHD NATOPS, and OPNAVINST 3710.7. Each event requires five FCLPs. FCLP-273 requires a designated CCNSI unless aircrew is designated NSQ for the appropriate light level.

c. Crew Requirement. CC, CC/CCUI or CC/AOUI. CC/AO shall fly FCLP-273.

d. Flight Training. (3 Flights, 3.0 Hours).

FCLP-271 1.0 C,R 1 CH-53

Goal. Introduce day FCLPs.

Requirement

Discuss:

- Shipboard operations.
- Aircraft clearance.
- Aircrew coordination.
- Hand and arm signals.
- Safety procedures.
- Ditching procedures.
- Emergency procedures.

Introduce:

Procedures required for shipboard operations.

Performance Standards. Perform day FCLPs IAW appropriate shipboard NATOPS.

Prerequisite. CAL-220.

Ordinance. N/A.

External Syllabus Support. N/A.

FCLP-272 1.0 O,R 1 CH-53 N

Goal. Introduce night, unaided FCLPs.

Requirement

Discuss:

- Nighttime procedures.
- Shipboard lighting.
- Shipboard operations.
- Aircraft clearance.
- Aircrew coordination.
- Hand and arm signals.
- Safety procedures.
- Ditching procedures at night.
- Emergency procedures.

Introduce:

Procedures required for shipboard operations at night.

Performance Standards. Perform night unaided FCLPs IAW appropriate shipboard NATOPS.

Prerequisite. FCLP-271.

Ordinance. N/A.

External Syllabus Support. N/A.

FCLP-273

1.0

O,R 1 CH-53 N NS

Goal. Introduce NVD FCLPs.

RequirementDiscuss:

NVD considerations for appropriate light level.
 Shipboard operations.
 Shipboard lighting.
 Aircraft clearance.
 Aircrew coordination.
 Hand and arm signals.
 Safety procedures.
 Ditching procedures.
 Emergency procedures.

Introduce:

Procedures required for shipboard operations in the NVD environment.

Performance Standards. Perform NVD FCLPs IAW appropriate shipboard NATOPS.

Prerequisite. CAL-222 and 320 as appropriate for ambient light level.

Ordinance. N/A.

External Syllabus Support. N/A.

7. Air-to-Ground (AG)

a. Purpose. To develop procedures required to provide fire on targets of opportunity.

b. General

(1) Aerial gunnery qualification lectures and initial instructional flights must be conducted by a WTCCI or AGI.

(2) At least one aircrew shall possess a crew served weapons checklist.

(3) An AGI is required for initial flight or when any aircrew are not designated aerial gunners.

(4) At the completion of this stage, the aircrew will demonstrate knowledge of weapons systems and ordnance delivery with crew served weapons.

- c. Crew Requirement. CC/AGO, AGI/CCUI, AGI/AOUI. AOUI flies AG-280/281.
- d. Ground Training. Review all applicable manuals, consult the MAWTS-1 Course Catalog for the appropriate Academic Support Package lectures to be given, and appropriate ground schools.
- e. Flight Training. (2 Flights, 3.0 Hours).

AG-2801.5C,R 1 CH-53

Goal. Introduce gunnery training with the XM-218 (.50 Cal Machine Gun).

RequirementDiscuss:

Use and application of crew served weapons checklist.
 Fire discipline.
 Aiming techniques.
 Crew coordination.
 Fire control voice commands/hand and arm signals.
 Range considerations.
 Weapon capabilities.
 Firing in landing profile.
 Weapon malfunctions.
 Burst rates.

Introduce:

Preflight.
 Safety procedures associated with ordnance evolutions.
 Ordnance loading.
 Burst Rates.
 Flight profiles (running, diving, hovering).
 Post-flight.

Performance Standards. Operate XM-218 safely IAW crew served weapons checklist and CH-53 TAC Manual. Aircrew shall demonstrate positive weapons control and effective fire on pre-briefed targets as stated in the CH-53 TAC Manual.

Prerequisites. TERF-230.

Ordnance. 500 rds .50 cal. and 2 XM-218 guns.

External Syllabus Support. Range/Ordnance request.

AG-2811.5C,R 2 CH-53

Goal. Introduce day AG with the XM-218 within a section.

RequirementReview:

AG-280.

Discuss:

Crew responsibilities.
 Section responsibilities.
 Sectors of fire.
 Target hand-off.

Introduce:

Limited sectors of fire.
 Fire discipline within a section.
 Weapons Conditions (Weapons Free, Tight, Hold).

Practice:

Firing on prebriefed targets.
 Crew coordination.
 Firing in different flight profiles, (i.e. diving, hovering, etc.).
 Burst rates.

Performance Standards. Operate XM-218 safely IAW crew served weapons checklist and CH-53 TAC Manual within a section. Aircrew shall demonstrate positive weapons control in a section and effective fire on pre-briefed targets as stated in the CH-53 TAC Manual.

Prerequisites. FORM-210 and AG-280.

Ordinance. 500 rds .50 cal. and 2 XM-218 guns.

External Syllabus Support. Range/Ordinance request.

8. Tactics (TAC)

a. Purpose. To introduce aircrew responsibilities with tactical missions.

b. General

(1) Read Paragraph 232.

(2) Completion of TAC-291 satisfies the requirement for NSQ HLL.

(3) A CCNSI is required on initial TAC-291.

c. Crew Requirement. CC/AG, CC/CCUI or CC/AOUI. AOUI flies TAC-290/291.

d. Ground Training. Consult the MAWTS-1 course catalog for the recommended lectures in the Academic support Package applicable to this stage of flight. Review CH-53 TAC Manual applicable chapters.

f. Flight Training. (2 Flights, 4.0 Hours).

TAC-2902.0C,R 2 CH-53

Goal. Introduce aircrew responsibilities during a section tactical operation.

RequirementReview:

INT-200 and INT 201.
 FORM-210.
 CAL-221.
 TERF-231.

Discuss:

Weather considerations.
 Scanning techniques (open terrain, dense vegetation).
 Navigation.
 No comm. lead changes.
 Procedures for downed aircrew escorts.

Introduce:

Lookout Doctrine.
 Scanning techniques.
 Egress considerations with XM-218s mounted.

Performance Standards. Demonstrate basic knowledge in low threat environment as stated in CH-53 TAC Manual. Demonstrate effective scan techniques as stated in CH-53 TAC Manual.

Prerequisite. FORM 210 and TERF-231.

Ordinance. 2 XM-218 guns and notional .50 cal rounds.

External Syllabus Support. Ordnance request for weapons.

TAC-291

2.0

O,R 2 CH-53 N NS

Goal. Introduce aircrew responsibilities during tactical operations with multiple aircraft using NVDs.

RequirementReview:

TAC-290.

Discuss:

Taxi drop of internal cargo.
 Parachute operations.
 Embarking/debarking of troops using NVDs.
 Comfort level.

Introduce:

Lookout doctrine.
 Scanning techniques.
 Egress considerations with XM-218s mounted.

Performance Standards. Demonstrate basic knowledge in low threat environment on NVDs as stated in CH-53 TAC Manual. Demonstrate effective scan techniques on NVDs as stated in CH-53 TAC Manual.

Prerequisite. FORM 211, TERF-233, and TAC-290.

Ordinance. 2 XM-218 guns and notional .50 cal rounds.

External Syllabus Support. N/A.

233. COMBAT QUALIFICATION PHASE. Aircrew undergoing instruction in this phase must have completed the MAWTS-1 Course Catalog Academic Support Package lectures applicable to this phase of training prior to conducting NS events. NS rules of conduct will be per T&R Manual, Administrative. Aircrew shall fly all NS events listed below under ambient light conditions of below .0022 LUX. An aircrew under instruction is NSQ LLL (able to transport troops) when the following four events have been completed: CAL-320, CAL-321, TERF-330

and TERF-331. EXT-342 and TAC-391 must be flown under LLL conditions. These flights require a CCNSI for initial qualification. Aircrew may fly all other NS events in this phase under HLL or LLL conditions.

1. Confined Area Landings (CAL)

- a. Purpose. To conduct CALs in LLL conditions (below .0022 LUX).
- b. General
(1) A CCNSI is required on initial flights.
- c. Crew Requirement. CC/AO, CC/CCUI or CC/AOUI. AOUI flies CAL-320/321.
- d. Prerequisite. Crew member under instruction must be NSQ HLL.
- e. Flight Training. (2 Flights, 3.5 Hours).

CAL-320 1.5 C,R 1 CH-53 N NS

Goal. Perform NVD low work and CALs during LLL conditions.

Requirement

Review:

CALs.
Aircrew coordination.
Lookout doctrine.
Aircraft clearances.
Terrain suitability.
Drift correction.
Dark adaptation.
NVD failures.
Aircraft lighting.

Discuss:

LLL NVD considerations.
Comfort levels.
Aircrew coordination.

Performance Standards. Practice aircrew responsibilities during CALs using NVDs in a LLL condition IAW applicable NATOPS.

Prerequisite. CAL-223.

Ordinance. N/A.

External Syllabus Support. N/A.

CAL-321 2.0 O,C,R,S 2 CH-53 N NS

Goal. Develop proficiency in section CAL operations using NVDs during LLL conditions.

Requirement

Review:

CALs.
Aircrew coordination.
Lookout doctrine.
Aircraft clearances.

Terrain suitability.
 Drift correction.
 Dark adaptation.
 NVD Failures.
 Aircraft lighting.

Discuss:

LLL NVD considerations.
 Comfort levels.
 Aircrew coordination.

Performance Standards. Demonstrate proficiency of aircrew responsibilities doing CALs using NVDs in a LLL condition IAW the applicable NATOPS.

Prerequisite. CAL-320.

Ordinance. N/A.

External Syllabus Support. N/A.

2. Terrain Flight (TERF)

a. Purpose. To develop TERF crew coordination skills in the night environment. Develop proficiency in TERF using NVDs in LLL conditions.

b. General

- (1) Currency requirements per T&R Manual, Administrative.
- (2) A CCNSI is required on initial flights.

c. Crew Requirement. CC/AO, CC/CCUI or CC/AOUI. AOUI flies TERF-330 and 331.

d. Ground Training. Be familiar with the TERF classes in the Academic Support Package applicable to this stage of flight.

e. Flight Training. (2 Flights, 4.0 Hours).

TERF-330

2.0

C,R 1 CH-53 N NS

Goal. Review maneuvers and clearance while flying in a TERF environment using NVDs in LLL conditions.

Requirement

Review:

TERF-232.
 CAL-320.

Discuss:

LLL NVD considerations.
 Aircraft lighting.
 Crew comfort levels.
 Aircrew coordination.
 Lookout doctrine.
 Terminology.
 ICS procedures.
 Obstacle clearance.
 Emergency procedures.

Performance Standards. Perform TERF maneuvers while in the TERF environment using NVDs in a LLL condition IAW applicable NATOPS and TAC Manual.

Prerequisite. CAL-320.

Ordinance. N/A.

External Syllabus Support. N/A.

TERF-331 2.0 O,C,R,S 2 CH-53 N NS

Goal. Review maneuvers and clearance for an aircraft section in the TERF environment using NVDs in LLL conditions.

Requirement

Review:

CAL-321.

TERF-330.

Discuss:

LLL NVD considerations.

Aircraft lighting.

Crew comfort levels.

Aircrew coordination.

Lookout doctrine.

Terminology.

ICS procedures.

Aircraft clearance.

Emergency procedures.

Multiple aircraft operations.

Performance Standards. Perform TERF maneuvers for a section while in the TERF environment using NVDs in a LLL condition IAW applicable NATOPS and TAC Manual.

Prerequisite. CAL-223, TERF-231 and TERF-232.

Ordinance. N/A.

External Syllabus Support. N/A.

3. External Loads (EXT)

a. Purpose. To develop proficiency with heavy lift external loads from confined areas in the TERF environment.

b. General

(1) Aircrew may fly these flights in conjunction with the pilot syllabus. When practical, flights should practice externals with heavy lift FMF equipment.

(2) EXT-341 requires a CCTERFI for initial qualification.

(3) EXT-342 and 343 require a CCNSI for initial qualification. EXT-342 must be flown under LLL conditions.

(4) Transport loads either single or dual point, as appropriate.

c. Crew Requirement. CC/AO, CC/CCUI or CC/AGOU. AOUI flies EXT-341/342.

d. Ground Training. Consult FMFRP 5-31 VOL. I-III (Basic Operation/Equipment and Single Dual Point Hook Procedures), FMFRP 5-31, Vol. 1, Multi-Service Helicopter External Air Transport Manual and applicable series NATOPS.

e. External Syllabus Support. HST, certified load.

g. Flight Training. (3 Flights, 4.5 Hours).

EXT-341

1.5

O,C,R,S 1 CH-53

Goal. Introduce and practice external operations in the TERF environment.

Requirement

Review:

TERF-230.

EXT-240 and 241 as appropriate.

Discuss:

Emergency procedures.

Aircrew responsibilities during TERF flight.

Cargo pendant release procedures.

Varying hookup options.

Load length considerations for TERF flight.

Safety considerations.

Introduce:

Practice single or dual point external cargo carrying operations in a TERF environment.

Performance Standards. Perform external operations in the TERF environment IAW applicable NATOPS and TAC Manual.

Prerequisite. CAL-220, TERF-230, EXT-240, and 241.

Ordinance. N/A.

External Syllabus Support. HST, certified load.

EXT-342

1.5

O,C,R,S 1 CH-53 N NS

Goal. Introduce external operations in LLL conditions, dual point preferred for CH-53E.

Requirement

Review:

TERF-320.

EXT-242 and 243 as appropriate.

Safety precautions.

External cargo lighting patterns.

Use of Chem lights on external pendant and the external load.

Blowing debris.

Load rigging.

Obstacle clearance on approach to and departure from the drop zone.

Discuss:

LLL NVD considerations.
 Aircrew coordination.
 Flight with dual point external loads (if required).
 Load stability.
 Standardized terminology.
 Load rigging.

Introduce:

External operations using NVDs in LLL conditions.

Performance Standards. Demonstrate proficiency of external operations using NVDs in a LLL condition IAW applicable NATOPS.

Prerequisite. CAL-320 and EXT-341.

Ordinance. N/A.

External Syllabus Support. HST, certified load.

EXT-343

1.5 O,C,R,S 1 CH-53 N NS

Goal. Introduce external operations in the TERF profiles using NVDs.

RequirementReview:

TERF-320.
 EXT-341 and EXT-342.
 Safety precautions.
 External cargo lighting patterns.
 Use of Chem lights on external pendant and the external load.
 Blowing debris.
 Load rigging.
 Obstacle clearance on approach to and departure from the drop zone.

Discuss:

HLL or LLL NVD considerations as applicable.
 Aircrew coordination.
 Flight with dual point external loads (if required).
 Load stability.
 Standardized terminology.
 Load rigging.
 Aircraft clearances.
 Load clearances.

Introduce:

External operations using NVDs in the TERF environment.
 External operations while operating in the TERF environment.

Performance Standards. Demonstrate proficiency of external operations using NVDs while operating in the TERF environment as outlined in the applicable NATOPS and TAC Manual.

Prerequisite. EXT-341 and 342.

Ordinance. N/A.

External Syllabus Support. HST, certified load.

4. Defensive Measures (DM)

a. Purpose. To introduce aircrew responsibilities during defensive measures and EW tactics in a medium threat environment. Upon completion of this stage aircrew should have an understanding of the maneuvers and employment techniques necessary to counter a low altitude surface-to-air threat.

b. General

(1) The utilization of an EW range with threat systems that include electromagnetic and ground based threat simulation; e.g. smokey SAMs, hand-held pyrotechnics etc. will greatly enhance aircrew training. The use of an APR-39 trainer or WST simulator will aid in preparing aircrew prior to flight.

(2) A CCDMI is required on initial flights.

c. Crew Requirement. CC/AO, CC/CCUI or CC/AOUI. AOUI flies DM-350.

d. Ground/Academic Training. Aircrew under instruction will be familiar with procedures outlined in the helicopter DM Guide and should have completed academic instruction on the use of DECM equipment. Consult the MAWTS-1 course catalog for the recommended lectures in the Academic Support Package applicable to this stage of flight.

e. Flight Training. (1 Flight, 2.0 Hours).

DM-350

2.0

O,C,R 2 CH-53

Goal. Introduce and practice aircrew responsibilities.
Practice basic operations and procedures for DECM equipment.

Requirement

Discuss:

DECM equipment.
Aircrew coordination.
Section tactics.
Low altitude emergencies.
Use of RADAR horizons and RADAR masking techniques as they relate to specific air defense systems.

Introduce:

Section maneuvering against IR missiles on low altitude
RADAR guided threats on EW range if available.
DM while dispersing chaff and flares.

Performance Standards. Demonstrate basic knowledge of Attack Warning and helicopter tactics against a low altitude surface-to-air threat IAW the CH-53 TAC Manual.

Prerequisite. TERF-231.

Ordinance. 30 chaff and 30 flares.

External Syllabus Support. Ground Emitter.

5. Carrier Qualification (CQ)

a. Purpose. To qualify aircrew in day and night shipboard operations.

b. General. Discuss and become familiar with all aspects of shipboard operations and aircrew coordination applicable to the carrier qualification stage as described in the appropriate NATOPS Flight Manual, NWP-42, the LHA/LPH/LHD NATOPS, and OPNAVINST 3710.7. Each flight requires five CQs. CQ-372 requires CCNSI for initial flight unless aircrewmembers are NSQ for the appropriate light level.

c. Crew Requirement. CQ-370 and 371, CC. CQ-372, CC/CCUI or CC/AOUI. AOUI flies CQ-370 and 372.

d. Flight Training. (3 Flights, 4.5 Hours).

CQ-370 1.5 O,C,R 1 CH-53

Goal. Introduce day CQs.

Requirement

Review:

FCLP-271.

Discuss:

Shipboard operations.
Aircraft clearance.
Aircrew coordination.
Hand and arm signals.
Safety procedures.
Ditching procedures.
Emergency procedures.

Performance Standards. Perform day CQs IAW appropriate shipboard NATOPS.

Prerequisite. FCLP-271.

Ordinance. N/A.

External Syllabus Support. Helicopter capable ship.

CQ-371 1.5 O,C,R 1 CH-53 N

Goal. Introduce night, unaided CQs.

Requirement

Review:

FCLP-272.
CQ-370.

Discuss:

Night procedures.
Shipboard lighting.
Shipboard operations.
Aircraft clearance.
Aircrew coordination.
Hand and arm signals.
Safety procedures.
Ditching procedures at night.
Emergency procedures.
Night fixation.

Performance Standards. Perform night unaided CQs IAW appropriate shipboard NATOPS.

Prerequisite. FCLP-272 and CQ-370.

Ordinance. N/A.

External Syllabus Support. Lighted helicopter capable ship.

CQ-372

1.5 O,C,R 1 CH-53 N NS

Goal. Introduce NVD CQs.

Requirement

Review:

FCLP-273.

CQ-371.

Discuss:

NVD considerations for appropriate light level.

Shipboard operations.

Shipboard lighting.

Aircraft clearance.

Aircrew coordination.

Hand and arm signals.

Safety procedures.

Ditching procedures.

Emergency procedures.

Performance Standards. Perform NVD CQs IAW appropriate shipboard NATOPS.

Prerequisite. FCLP-273 and CQ-371.

Ordinance. N/A.

External Syllabus Support. NVD compatible helicopter capable ship.

6. Air-to-Ground Gunnery and Qualification (AG)

a. Purpose. To demonstrate proficiency in delivering fire on targets of opportunity at night while using NVDs.

b. General

(1) Completion of this stage is the minimum requirement for aerial gunnery training. AGUI must complete the aerial gunnery evaluation event, AG-381 and be designated by the commanding officer prior to firing without an AGI.

(2) AG-381 certifies the AGUI as an aerial gunner with the respective weapon. Aircrew may be designated an aerial gunner by the commanding officer after completing AG-381.

(3) Aircrew may conduct these events in either HLL or LLL conditions and should be NSQ in the appropriate light level condition. If aircrew are not NSQ for appropriate light level a CCNSI is required.

(4) Aerial gunnery lectures and initial instructional flights must be conducted by a WTCCI or AGI.

(5) A AGI CCNSI is required for initial flights.

- c. Crew Requirement. CC/AGO. AOUI flies AG-280 and 281.
- d. Ground Training. Review appropriate chapters of the CH-53 TAC Manual. Consult the MAWTS-1 Course Catalog for the appropriate Academic Support Package lectures to be presented.
- e. Flight Training. (2 Flights, 2.0 Hours).

AG-3801.0C,R 1 CH-53 N NSGoal. Introduce XM-218 gunnery while using NVDs.RequirementReview:

AG-280.

Discuss:

Muzzle Flash.
Sighting techniques.
LASER safety/employment.
Cabin configuration.
Burst rates.

Introduce:

Aiming techniques on NVDs.
Weapons control on NVDs.
Lighting used with weapon operation.

Performance Standards. Operate XM-218 safely IAW crew served weapons checklist and CH-53 TAC Manual while utilizing NVDs. Aircrew shall demonstrate positive weapons control during night environment and demonstrate effective fire on pre-briefed targets as stated in the CH-53 TAC Manual.

Prerequisite. AG-280.Ordinance. 500 rds .50 cal. and 2 XM-218 guns.External Syllabus Support. Range/Ordinance request.AG-3811.0C,R 2CH-53 N NSGoal. Introduce NVD AG with the XM-218 within a section. Qualify aircrew as an aerial gunner.RequirementReview:

AG-380.

Discuss:

Crew responsibilities.
Section responsibilities.
Sectors of fire.
Target hand-off.
Weapons Conditions (Weapons Free, Tight, Hold).

Introduce:

Aiming techniques in section on NVDs.
Weapons control in section on NVDs.

Practice:

Aiming techniques on NVDs.
 Weapons control on NVDs.
 Lighting used with weapon operation.
 Weapons employment/delivery.

Performance Standards. Aircrew will demonstrate proficiency implementing all aspects of the crew served weapons checklist. Aircrew will demonstrate effective and safe usage of the XM-218 IAW the CH-53 TAC Manual.

Prerequisite. AG-280, AG-281 and AG-380.

Ordinance. 500 rds .50 cal. and 2 XM-218 guns.

External Syllabus Support. Range/Ordinance request.

7. Tactics (TAC)

a. Purpose. To develop aircrew responsibilities during tactical operations in a low to medium threat environment.

b. General

(1) All mission briefs require an intelligence brief. To the greatest extent possible incorporate the employment of escort aircraft (fixed or rotary wing), the employment of the ALE-39 and the APR-39, the .50 caliber machine gun, and use of the AR-5/M-24 gas masks. Aircrew shall conduct these flights under the standards required in MCO 3501.4, MCCRES, Volume III, Marine Heavy Helicopter Squadrons and/or MCO 3501.8 MCCRES, Volume IX, Special Operations.

(2) A CCNSI is required for initial TAC-391. TAC-391 must be flown under LLL conditions.

(3) NBC-460 required if AR-5/M-24 used.

c. Crew Requirements. CC/AG, AGI/CCUI.

d. Ground Training Requirements. Aircrew must have received the ALE-39 class from the MAWTS-1 Enlisted Academic Support Package before flying TAC-390/391.

e. Flight Training. (2 Flights, 4.0 Hours).

TAC-390 2.0 C,R 2 CH-53

Goal. Introduce and practice aircrew responsibilities during tactical operations with multiple aircraft.

RequirementReview:

Loading/securing/unloading of cargo/vehicles/troops.

Discuss:

Taxi drop of internal cargo.
 Paradrop operations.
 Embarking/debarking of troops.
 External Operations.

Practice:

Responsibilities during a tactical operation.

Performance Standard. Demonstrate proficiency in low to medium threat environment as stated in CH-53 TAC Manual.

Prerequisites. TAC-290. All aircrew should be aerial gunner qualified. An AGI is required if aircrew are not aerial gunners.

Ordinance. 500 rounds of .50 cal, 30 chaff, 30 flares and 2 XM-218 guns.

External Syllabus Support. Range/Ordinance/Escort request if utilized.

TAC-3912.0O,C,R 2 CH-53 N NS

Goal. Practice aircrew responsibilities during tactical operations at night with multiple aircraft in LLL conditions utilizing NVDs.

RequirementReview:

TAC-291.

Discuss:

Taxi drop of internal cargo.
Paradrop operations.
Differences between day and night operations.
Embarking and debarking of troops at night.
External operations.
Crew comfort.
Crew coordination.

Practice:

Aircrew responsibilities during a tactical operation at night in LLL conditions on NVDs.

Performance Standard. Demonstrate proficiency in low to medium threat environment in LLL conditions on NVDs as stated in CH-53 TAC Manual.

Prerequisite. TAC-291. All aircrew should be aerial gunners. An AGI CCNSI is required if aircrew are not aerial gunner qualified.

Ordinance. 500 rounds of .50 cal., 30 chaff, 30 flares and 2 XM-218 guns.

External Syllabus Support. Range/Ordinance/Escort request if utilized.

234. FULL COMBAT QUALIFICATION PHASE1. Helicopter Insertion/Extraction Techniques (HIE)

a. Purpose. To develop proficiency with insertion/extraction methods required in executing special missions by emphasizing rappelling, fast-rope, Special Insertion/Extraction (SPIE), helo casting, and aerial delivery.

b. General. The CC shall conduct a brief with the specific team leader, then the entire team prior to take off to discuss mission requirements and aircraft safety procedures. A NSI is required for NVD initial flights.

c. Crew Requirement. CC/AO, CC/CCUI or CC/AOUI. AOUI flies HIE-400, 401 and 402.

d. Ground Training Requirements

(1) Refer to the MAWTS-1 Course Catalog for the appropriate stage of training.

(2) Aircrew shall be NSQ for appropriate light level conditions and qualified to carry troops per T&R Manual, Administrative in order to conduct HIE-400.

e. Flight Training. (3 Flights, 4.5 Hours).

HIE-400 1.5 O,C,R,S 1 CH-53 (N)(NS)

Goal. Introduce procedures for tactical insertion and/or extraction of a ground force via rappelling, fast-rope or SPIE.

Requirement

Discuss:

NVD considerations if applicable.
Aircrew coordination.
Safety procedures.
Hand and arm signals.
Obstacle clearance.
Associated equipment.
Emergency procedures.

Introduce:

Tactical insertions.
Techniques for inserting personnel by fast-rope.
Rappelling.
SPIE rig.

Performance Standards. Perform tactical insertion and/or extraction of a ground force via rappelling, fast-rope or SPIE IAW applicable NATOPS and TAC Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. Fast-rope bar.

HIE-401 1.5 O,C,R,S 1 CH-53

Goal. Introduce procedures for tactical insertion helocast.

Requirement

Discuss:

Aircrew coordination.
Safety procedures.
Hand and arm signals.
Obstacle clearance.
Associated equipment.

Emergency procedures.

Introduce:

Techniques for inserting personnel by helocast.

Performance Standards. Demonstrate procedures for a tactical insertion via helocast IAW applicable TAC Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

HIE-402

1.5 O,C,R,S 1 CH-53 (N)(NS)

Goal. Introduce procedures for tactical insertion via paraops.

Requirement

Discuss:

NVD considerations if applicable.
Aircrew coordination.
Safety procedures.
Hand and arm signals.
Ground signals.
Obstacle clearance.
Associated equipment.
Emergency procedures.

Introduce:

Techniques for inserting personnel by paraops.

Performance Standards. Perform procedures for tactical insertion via paraops IAW applicable TAC Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

2. Internal Loads (INT) (CH-53E)

a. Purpose. To introduce CC duties in loading, securing, unloading, internal procedures and use of the Tactical Bulk Fuel Dispensing System (TBFDS).

b. General

(1) Aircrew may fly these flights in conjunction with any stage of the pilot syllabus.

(2) Instructor shall be a CCNSI for initial or refresher if NVDs are used.

c. Crew Requirement. CC/CCUI.

d. Ground/Academic Training. Study the A1-H53BE-GLG-000 (Cargo Loading Manual), NATOPS Flight Manual, and helicopter loading and equipment storage. Aircrew shall receive the TBFDS class from the MAWTS-1 Enlisted Academic Support Package.

d. Flight Training. (1 Flight, 2.0 Hours).

INT-410 2.0 O,C,R,S 1 CH-53 (N)(NS)

Goal. Review internal procedures and introduce use of the TBFDS.

Requirement

Review:

INT-200 and INT-201.

Discuss:

Installation considerations for TBFDS.

Procedures for refueling other types of aircraft and/or vehicles.

Rapid Ground Refueling/FARP procedures to include preflight, taxiing aircraft, mechanical configuration, lighting configurations, post flight and clean up.

Fire fighting equipment and procedures for particular TBFDS evolution.

Introduce:

Proper restraint system and loading scenarios for different tank setups and fuel line configuration.

Performance Standards. Demonstrate knowledge of TBFDS setup and refueling operations as outlined in the CH-53 TAC Manual.

Prerequisite. INT-200.

Ordinance. N/A.

External Syllabus Support. Ground or RW assets to refuel.

3. Defensive Measures (DM)

a. Purpose. To introduce aircrew responsibilities during section DM against helicopter and fixed-wing aggressor aircraft. Upon completion of this stage the aircrew should have an understanding of the maneuvers and employment techniques necessary to counter air-to-air threat.

b. General. A designated CCDMI is required on initial events. If NVDs are used then the CCDMI will also be a CCNSI.

c. Crew Requirement. CC/AO, CC/CCUI or CC/AOUI. AOUI flies DM-450 and 451.

d. Ground/Academic Training. Aircrew should be familiar with procedures outlined in the helicopter DM Guide and should have completed academic instruction on the use of DECM equipment. Consult the MAWTS-1 Course Catalog for the recommended lectures in the Academic Support Package applicable to this stage of flight.

e. Flight Training. (2 Flights, 1.0 Hour).

DM-450 0.5 C,R 2 CH-53

Goal. Introduce and practice aircrew responsibilities as a section against an adversary helicopter.

Requirement

Review:

DM-350.

Discuss:

Lookout doctrine.
 Attack Warning.
 Standard terminology.
 Section maneuvering.
 Aircrew coordination.
 Aircraft limitations.

Introduce:

Section helicopter DM against an adversary helicopter
 attacking from prebriefed and unknown locations.

Performance Standards. Demonstrate knowledge of Attack
 Warning and tactical maneuvers as stated in the MAWTS-1 DM
 Manual.

Prerequisite. TERF-231.

Ordinance. 30 flares.

External Syllabus Support. Rotary wing aggressor.

DM-451

0.5 C,R 2 CH-53

Goal. Introduce and practice aircrew responsibilities in a
 section against a fixed wing adversary.

RequirementReview:

DM-450.

Discuss:

Fixed wing attack.
 Tactical maneuvers.

Practice:

Section helicopter DM against a fixed wing adversary
 attacking from prebriefed and unknown locations.

Performance Standards. Demonstrate proficiency of Attack
 Warning and tactical maneuvers as stated in the MAWTS-1 DM
 Manual.

Prerequisite. TERF-231.

Ordinance. 30 flares.

External Syllabus Support. Fixed wing aggressor.

4. Nuclear, Biological, and Chemical (NBC)

a. Purpose. To conduct flight operations while wearing NBC protective
 equipment.

b. General

(1) Aircrew may fly this event during the FAM, CAL, TAC, or NBC stage
 of the pilot syllabus. For the safe execution of initial NBC flights, one
 pilot and one aircrew shall remain unmasked.

(2) The M-24 aircrew protective mask is authorized for squadrons that
 do not have the AR-5.

c. Crew Requirement. CC/AO, CC/CCUI or CC/AOUI.

d. Ground Training

(1) Discuss wearing of the NBC defense suit, mask, hood, gloves and boots. Introduce proper maintenance and serviceability checks on equipment, emphasizing donning of equipment.

(2) Discuss physiological factors associated with flying while wearing NBC protective equipment.

(3) Consult the MAWTS-1 Course Catalog.

e. Flight Training. (1 Flight, 1.0 Hour).

NBC-460

1.0

R 1 CH-53 (N)(NS)

Goal. Introduce flight in a simulated NBC environment with either the AR-5 or M-24 masks.

Requirement

Discuss:

Chemical agents.

Biological agents.

Fatigue.

Distortion of vision while using the M-24 or AR-5 gas mask.

Demonstrate:

A portion of preflight wearing full NBC equipment.

Introduce:

Donning of the Chemical suit and M-24 or AR-5 gas mask.

Wearing of mask during taxi, low work takeoff and landings.

Performance Standards. Perform flight in a simulated NBC environment wearing either the AR-5 or M-24 masks IAW Applicable NATOPS and TAC Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

5. Moving Target Gunnery (MTG)

a. Purpose. To introduce techniques and profiles in conducting MTG.

b. General. Aircrews shall fly this stage IAW CH-53 TAC Manual.

c. Crew Requirements. CC/AG, AGI/CCUI. AOUI flies MTG-480.

d. Ground/Academic Training. Review applicable chapters of CH-53 TAC Manual.

e. Flight Training. (1 Flight, 1.5 Hours).

MTG-480 1.5 C,R 1 CH-53

Goal. Introduce MTG.

Requirement

Review:

AG-281.

Discuss:

Aiming techniques.

Lead compensation.

Safety procedures.

Introduce:

Applicable MTG.

Shadow gunnery.

Towed banner.

Dart.

Moving land target.

Performance Standards. Demonstrate understanding of MTG as stated in the CH-53 TAC Manual.

Prerequisite

Aircrew should be aerial gunner qualified.

An AGI is required if aircrew are not aerial gunners.

Ordnance. 500 rds .50 cal. and 2 XM-218 guns.

External Syllabus Support. Range/ordnance request.

6. Tactics (TAC)

a. Purpose. To conduct practical application exercises using skills developed through the syllabus. These exercises will include planning, briefing, and execution of an assault support mission in a medium to high threat environment.

b. General. Aircrew shall conduct these flights under the standards required in MCO 3501.4A, MCCRES, Volume III, Marine Heavy Helicopter Squadrons and/or MCO 3501.8A MCCRES, Volume VII, MAGTF Elements. Aircrew may conduct these flights in high or low light level conditions and must be NSQ for appropriate light level.

c. Crew Requirement. CC/AGO, CC/CCUI or CC/AGOU. AOUI flies TAC-490 and 492.

d. Ground Training. Consult the MAWTS-1 Course Catalog.

e. Flight Training. (2 Flights, 4.0 Hours).

TAC-490 2.0 R 3+ ACFT (N)(NS)

Goal. Develop integrated tactical flight proficiency in a high threat environment.

Requirement

Review:

TAC-390 and TAC-391.

Discuss:

Escort integration, i.e. Battle Positions.
 Sectors of fire consideration for entire flight.
 Section responsibilities, i.e. free/engaged aircraft.
 Operations in LZ.

Introduce:

Escort integration, i.e. Battle Positions.
 Sectors of fire consideration for entire flight.
 Section Responsibilities, i.e. free/engaged aircraft.
 Operations in LZ.

Performance Standards. Demonstrate proficiency in multi-aircraft flight in a high threat environment as stated in the CH-53 TAC Manual.

Prerequisite

TAC-390 if day. TAC-391 if NVDs are used.
 Aircrew should be aerial gunners.
 An AGI is required if aircrew are not aerial gunners.

Ordinance. 1000 rds of .50 cal ammo, 30 chaff, and XM-218's.

External Syllabus Support. Range/ordnance/escort requests.

TAC-492

2.0

O,C,R,S 2+ ACFT (N)(NS)

Goal. Develop tactical flight proficiency in urban terrain operations at night.

RequirementReview:

TAC-391.

Discuss:

Effects of ambient lighting on night systems in an urban area.
 Obstacle clearance in urban area.
 Scan techniques in urban area, i.e. dense vegetation scan.

Introduce:

Effects of ambient lighting on night systems in an urban area.
 Obstacle clearance in urban area.
 Scan techniques in urban area, i.e. dense vegetation scan.

Performance Standards. Demonstrate understanding of CH-53 operations in urban areas as stated in the MAWTS-1 MOUT Manual.

Prerequisite

TAC-390.
 Aircrew should be aerial gunner qualified.
 An AGI is required if aircrew are not aerial gunners.

Ordinance. N/A.

External Syllabus Support. N/A.

240. INSTRUCTOR TRAINING1. Crew Chief Instructor Under Training (CCIUT)

a. Purpose. To develop proficiency in instructional procedures and techniques to support CC training.

b. General

(1) Fleet Replacement Squadron

(a) All instructor under training flights emphasize standardization of CC procedures and techniques. The CCIUT should be capable of demonstrating all training objectives associated with Combat Capable flight instruction.

(b) IUT events 500 through 507 shall be complete prior to being designated a Crew Chief Instructor (CCI). Upon completion of STANX-507 and designation by the commanding officer, the CCI is capable of instructing all Combat Capable phase events to include TERF and NS events.

(c) STANX-507 can be flown in conjunction with any Combat Capable phase event.

(2) Fleet Operating Squadrons. For criteria concerning all instructor certifications and designations refer to T&R Manual, Administrative. MAWTS-1 Course Catalog contains the academic and syllabus requirements for all instructor certifications.

c. Crew Requirement. CCI/CCIUT.

d. Flight Training. (8 Flights, 8.0 Hours).

FORM-500

1.0

2 CH-53

Goal. Demonstrate CC responsibilities and instructional techniques during formation flight.

Requirement

Review:

Form-152.

Discuss:

Parade position.

Formations.

Closure rate.

Hand and arm signals.

In-flight emergency procedures.

Standard terminology.

Performance Standards. Demonstrate proper CCI responsibilities and instructional techniques during day formation flights IAW requirements outlined in this Chapter.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

FORM-501

1.0

2 CH-53 N NS

Goal. Demonstrate CC responsibilities and instructional techniques during night formation flight.

Requirement

Review:
Form-153.

Discuss:
Closure rate.
Aircraft lighting.
Light signals.
Lookout responsibilities.
Target fixation.
Standard terminology.
NVD considerations.

Performance Standards. Demonstrate proper CCI responsibilities and instructional techniques during NVD formation flights IAW requirements outlined in this Chapter.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

CAL-502

1.0 1 CH-53

Goal. Demonstrate crew chief responsibilities and instructional techniques during CALs.

Requirement

Review:
CAL-161.
CAL-162.

Discuss:
CALs.
Aircrew coordination.
Landing gear system failures.
Vibrations.
Engine failures in flight.

Performance Standards. Demonstrate proper CCI techniques and responsibilities for day CALs IAW requirements outlined in this Chapter.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

CAL-503

1.0 1 CH-53 N NS

Goal. Demonstrate CCI responsibilities and instructional techniques during HLL NVD CALs.

Requirement

Review:
FAM-122.
CAL-163.

Discuss:
NVDs.
NVD considerations.

Lighting.
 CALs.
 Aircrew coordination.
 Landing gear system failures.
 Vibrations.
 Engine failures in flight.

Performance Standards. Demonstrate proper CCI techniques and responsibilities for HLL NVD CALS IAW requirements outlined in this Chapter.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

TERF-504

1.0 1 CH-53

Goal. Demonstrate CCI responsibilities and instructional techniques during maneuvers and navigation while flying in the TERF environment.

Requirement

Review:

CAL-161 and CAL-162.
 TERF-180.

Discuss:

TERF maneuvers.
 Aircraft clearances.
 Standard terminology.
 CALs.
 Aircrew coordination.
 Landing gear system failures.
 Vibrations.
 Engine failures in flight.

Performance Standards. Demonstrate proper CCI techniques and responsibilities during maneuvers and navigation while flying in the TERF environment IAW requirements outlined in this Chapter.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

EXT-505

1.0 1 CH-53

Goal. Demonstrate CCI responsibilities and instructional techniques used during single (53D) and dual point (53E) external operations.

Requirement

Review:

CAL-161 and 162.
 EXT-170 and 172.

Discuss:

CC duties.

Standard terminology.
 External operations.
 CALs.
 Aircrew coordination.
 Landing gear system failures.
 Emergencies.

Performance Standards. Demonstrate proper CCI techniques and responsibilities used during external operations IAW requirements outlined in this Chapter.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. HST, certified load.

EXT-506

1.0 1 CH-53 N NS

Goal. Demonstrate CCI responsibilities and instructional techniques used during HLL NVD external operations.

Requirement

Review:

CAL-163.
 EXT-171 and 173.

Discuss:

NVD considerations.
 Lighting.
 CC duties.
 Standard terminology.
 External operations.
 CALs.
 Aircrew coordination.
 Landing gear system failures.
 Emergencies.

Performance Standards. Demonstrate proper CCI techniques and responsibilities used during HLL NVD external operations IAW requirements outlined in this Chapter.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. HST, certified load.

STANX-507

1.0 1 CH-53 (N) (NS)

Goal. CC standardization check.

Requirement

Review:

Applicable 100 series codes.

Discuss:

CCUI duties/responsibilities.
 Standard terminology.
 External operations.

CALs.
 Aircrew coordination.
 Emergency procedures.
 Instructional techniques.

Performance Standards. Demonstrate standard CCI procedures, techniques and responsibilities IAW requirements outlined in this Chapter.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. As required.

250. REQUIREMENTS, QUALIFICATIONS, AND DESIGNATIONS

1. Purpose. To determine qualification for designation in specific flight skills and systems knowledge.

2. General

a. This is an annual flight requirement per OPNAVINST 3710.7 and the CH-53 NATOPS Manual.

b. The evaluating CC shall be a CC NATOPS Assistant Instructor, NATOPS Instructor, or Evaluator.

3. Crew Requirement. CC/CC or CC/AO.

4. Flight Training. (1 Flight, 1.5 Hours).

EVAL-600 1.5 E 1 CH-53 (N)(NS)

Goal. Completion of the annual NATOPS evaluation.

Requirement

Discuss:

Crew Brief.

Demonstrate:

Aircraft systems knowledge.
 Pre/post flight procedures.
 In-flight procedures.
 Emergency procedures.
 Aircrew coordination.

Performance Standards. Demonstrate proficiency and knowledge of all flight skills and systems of the CH-53 as a CC or AG/O as applicable.

Prerequisites. Annual NATOPS Open and Closed book examinations must be complete prior to flight.

Ordinance. N/A.

External Syllabus Support. As required.

251. GRADUATE LEVEL COURSES

1. There are five graduate level courses that certify CCIs for tactical portions of the T&R syllabus. These courses are as follows:

- a. Weapons and Tactics Crew Chief Instructor (WTCCI Sec MOS 6177).
- b. Crew Chief Terrain Flight Instructor (CCTERFI).
- c. Crew Chief Night Systems Instructor (CCNSI).
- d. Crew Chief Defensive Measures Instructor (CCDMI).
- e. Crew Chief Aerial Gunner Instructor (CCAGI).

2. The above courses and applicable training syllabi are listed in the current MAWTS-1 Course Catalog. There will be no refly requirement for these instructor flights. T&R syllabus proficiency in stages is considered sufficient to maintain proficiency as an instructor. WTCCIs are only certified at the Weapons and Tactics Instructor course provided at MAWTS-1.

3. There is one graduate level course to qualify CCIs for the Fleet Replacement Squadron. This program of instruction is contained in paragraph 540, Instructor Under Training.

260. ORDNANCE REQUIREMENTS. Annual ordnance requirements are developed on a "per crew" basis per OPNAVNOTE 8010.

ORDNANCE	100 SERIES	200 SERIES	300 SERIES	400 SERIES	REFRESHER	IUT	ANNUAL*
.50 Cal	0	1,000	2,000	1,500	4,500	0	2,000
Chaff(1)	0	0	90	30	120	0	90
Flares(1)	0	0	90	90	180	0	90
Note (1) Chaff and Flare requirements are determined by the pilot's syllabus, Chapter 1.							

* Annual Ordnance requirements maintain aircrew proficiency.

AIRCRAFT: CH-53 MOS: 6173 CREW POSITION: CREW CHIEF

STAGE	FLT TRNG CODE	HRS	REFLY INTERVAL	CRP	O	C	R	S	E	REMARKS
COMBAT CAPABLE PHASE										
FAM	110	1.5	*	3.0		X	X	X		
	111	1.5	*	3.0						
	112	1.5	*	3.0	X					
	113	1.5	*	3.0	X					
	119	1.5	*	3.0						(N)
	120	1.5	*	3.0						N
	121	1.5	*	4.0		X	X			N (NS)
	122	1.5	*	4.0	X	X	X			N NS
INT	135	1.5	*	2.0	X	X	X	X		
	136	1.5	*	2.0	X					
	137	1.5	*	2.0	X					(N) (NS)
FORM	152	1.5	*	2.0						2 A/C
	153	1.5	*	2.0						2 A/C N NS
CAL	161	1.5	*	2.0						
	162	1.5	*	2.0	X	X	X	X		
	163	1.5	*	2.0	X	X	X	X		N NS
EXT	170	1.0	*	3.0	X	X	X	X		
	171	1.0	*	3.0	X	X	X	X		N NS
	172	1.5	*	3.0	X	X	X	X		
	173	1.5	*	3.0	X	X	X	X		N NS
TERF	180	1.5	*	2.0	X					
CCX	191	1.5	*	4.0	X	X	X	X	X	(N) (NS)
COMBAT READY PHASE										
INT	200	1.0	12	0.5	X	X	X			(N) (NS)
	201	1.0	12	0.5	X	X	X			(N) (NS)
FORM	210	1.5	12	0.5		X	X			2 A/C
	211	2.0	6	0.5		X	X			2 A/C N NS
CAL	220	1.5	12	0.5	X		X			
	221	1.5	12	0.5		X	X	X		2 A/C
	222	1.5	6	1.0			X			N NS
	223	2.0	6	1.0		X	X	X		2 A/C N NS
TERF	230	1.5	12	0.5			X			
	231	1.5	12	0.5	X	X	X	X		2 A/C
	232	2.0	6	1.0			X			N NS
	233	2.0	6	1.0	X	X	X	X		2 A/C N NS
EXT	240	1.5	12	0.5	X	X	X	X		
	241	1.5	12	0.5	X	X	X	X		
	242	1.5	6	1.0	X	X	X	X		N NS
	243	1.5	6	1.0	X	X	X	X		N NS

Figure 2-1.--Crew Chief Refly Interval, CRP.

AIRCRAFT: CH-53 MOS: 6173 CREW POSITION: CREW CHIEF

STAGE	FLT TRNG CODE	HRS	REFLY INTERVAL	CRP	O	C	R	S	E	REMARKS
COMBAT READY PHASE										
FCLP	271	1.0	12	0.5		X	X			
	272	1.0	12	0.5	X		X			N
	273	1.0	12	0.5	X		X			N NS
AG	280	1.5	12	0.5		X	X			
	281	1.5	12	0.5		X	X			2 A/C
TAC	290	2.0	12	0.5		X	X			2 A/C
	291	2.0	6	1.0	X		X			2 A/C N NS
COMBAT QUALIFICATION PHASE										
CAL	320	1.5	6	1.0		X	X			N NS
	321	2.0	6	1.5	X	X	X	X		2 A/C N NS
TERF	330	2.0	6	1.0		X	X			N NS
	331	2.0	6	1.5	X	X	X	X		2 A/C N NS
EXT	341	1.5	12	1.0	X	X	X	X		
	342	1.5	6	1.5	X	X	X	X		N NS
	343	1.5	6	2.0	X	X	X	X		N NS
DM	350	2.0	12	1.0	X	X	X			2 A/C
CQ	370	1.5	12	1.0	X	X	X			
	371	1.5	12	1.0	X	X	X			N
	372	1.5	12	1.0	X	X	X			N NS
AG	380	1.0	12	1.0			X			N NS
	381	1.0	12	2.0		X	X			2 A/C N NS
TAC	390	2.0	12	1.5		X	X			2 A/C
	391	2.0	12	2.0	X	X	X			2 A/C N NS
FULL-COMBAT QUALIFICATION PHASE										
HIE				53E/53D						
	400	1.5	12	0.5/0.5	X	X	X	X		(N) (NS)
	401	1.5	12	0.5/0.5	X	X	X	X		
	402	1.5	12	0.5/0.5	X	X	X	X		(N) (NS)
INT	410	2.0	12	0.5/0.0	X	X	X	X		(N) (NS) (53E ONLY)
DM	450	0.5	12	0.5/0.5		X	X			2V1 R/W
	451	0.5	12	0.5/0.5		X	X			2V1 F/W
NBC	460	1.0	12	0.5/0.5			X			(N) (NS)
MTG	480	1.5	12	0.5/0.5		X	X			
TAC	490	2.0	12	0.5/0.75			X			3+A/C(N) (NS)
	492	2.0	12	0.5/0.75	X	X	X	X		2+A/C(N) (NS)

Figure 2-1.--Crew Chief Refly Interval, CRP (Cont).

AIRCRAFT: CH-53 MOS: 6173 CREW POSITION: CREW CHIEF

STAGE	FLT TRNG CODE	HRS	REFLY INTERVAL	CRP	O	C	R	S	E	REMARKS
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INSTRUCTOR AND SPECIAL FLIGHT PERFORMANCE REQUIREMENTS

FORM	500	1.0	*	N/A						2 A/C
	501	1.0	*	N/A						2 A/C N NS
CAL	502	1.0	*	N/A						
	503	1.0	*	N/A						N NS
TERF	504	1.0	*	N/A						
EXT	505	1.0	*	N/A						
	506	1.0	*	N/A						N NS
STANX	507	1.0	*	N/A					X	(N) (NS)

REQUIREMENTS, QUALIFICATIONS, AND DESIGNATIONS

EVAL	600	1.5	12	N/A					X	(N) (NS)
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Figure 2-1.--Crew Chief Refly Interval, CRP (Cont).

AIRCRAFT: CH-53 MOS: 61XX CREW POSITION: AERIAL GUNNER/OBSERVER

STAGE	FLT TRNG CODE	HRS	REFLY INTERVAL	CRP	C	R	S	E	REMARKS
COMBAT CAPABLE PHASE									
FAM	110	1.5	*	5.0	X	X	X		
	120	1.5	*	5.0					N
	122	1.5	*	5.0	X	X			N NS
FORM	152	1.5	*	5.0					2 A/C
	153	1.5	*	5.0					2 A/C N NS
CAL	161	1.5	*	5.0					
	163	1.5	*	5.0	X	X	X		N NS
EXT	170	1.0	*	4.5	X	X	X		
	171	1.0	*	4.5	X	X	X		N NS
	172	1.5	*	4.5	X	X	X		
	173	1.5	*	4.5	X	X	X		N NS
TERF	180	1.5	*	5.0					
CCX	191	1.5	*	2.0	X	X	X	X	(N) (NS)
COMBAT READY TRAINING									
INT	200	1.0	12	0.5	X				(N) (NS)
	201	1.0	12	0.5	X				(N) (NS)
FORM	210	1.5	12	0.5	X	X			2 A/C
	211	2.0	6	0.5	X	X			2 A/C N NS
CAL	220	1.5	12	0.5		X			
	221	1.5	12	0.5	X	X	X		2 A/C
	222	1.5	6	1.0		X			N NS
	223	2.0	6	1.0	X	X	X		2 A/C N NS
TERF	230	1.5	12	0.5		X			
	231	1.5	12	0.5	X	X	X		2 A/C
	232	2.0	6	1.0		X			N NS
	233	2.0	6	1.0	X	X	X		2 A/C N NS
EXT	240	1.5	12	0.5	X	X	X		
	241	1.5	12	0.5	X	X	X		
	242	1.5	6	1.0	X	X	X		N NS
	243	1.5	6	1.0	X	X	X		N NS
FCLP	271	1.0	12	0.5	X	X			
	272	1.0	12	0.5					N
	273	1.0	12	0.5	X	X			N NS
AG	280	1.5	12	0.5	X	X			
	281	1.5	12	0.5	X	X			2 A/C
TAC	290	2.0	12	0.5	X	X			2 A/C
	291	2.0	6	1.0		X			2 A/C N NS

Figure 2-2.--Aerial Gunner/Observer Refly Interval.

AIRCRAFT: CH-53 MOS: 61XX CREW POSITION: AERIAL GUNNER/OBSERVER

STAGE	FLT TRNG CODE	HRS	REFLY INTERVAL	CRP	C	R	S	E	REMARKS
COMBAT QUALIFICATION PHASE									
CAL	320	1.5	6	1.0	X	X			N NS
	321	2.0	6	1.5	X	X	X		2 A/C N NS
TERF	330	2.0	6	1.0	X	X			N NS
	331	2.0	6	1.5	X	X	X		2 A/C N NS
EXT	341	1.5	12	1.0	X	X	X		
	342	1.5	6	1.5	X	X	X		N NS
	343	1.5	6	2.0	X	X	X		N NS
DM	350	2.0	12	1.0	X	X			2 A/C
CQ	370	1.5	12	1.0	X	X			
	371	1.5	12	1.0					N
	372	1.5	12	1.0	X	X			N NS
AG	380	1.0	12	1.0	X	X			N NS
	381	1.0	12	2.0	X	X			2 A/C N NS
TAC	390	2.0	12	1.5	X	X			2 A/C
	391	2.0	12	2.0	X	X			2 A/C N NS
FULL-COMBAT QUALIFICATION PHASE									
HIE	400	1.5	12	0.5/0.5	X	X	X		(N) (NS)
	401	1.5	12	0.5/0.5	X	X	X		
	402	1.5	12	0.5/0.5	X	X	X		(N) (NS)
INT	410	2.0	12	0.5/0.0	X	X	X		(N) (NS) (53E ONLY)
DM	450	0.5	12	0.5/0.5	X	X			2V1 R/W
	451	0.5	12	0.5/0.5	X	X			2V1 F/W
NBC	460	1.0	12	0.5/0.5					(N) (NS)
MTG	480	1.5	12	0.5/0.5	X	X			
TAC	490	2.0	12	0.5/0.75		X			3+A/C(N) (NS)
	492	2.0	12	0.5/0.75	X	X	X		2+A/C(N) (NS)
REQUIREMENTS, QUALIFICATIONS, AND DESIGNATIONS									
EVAL	600	1.5	12	N/A	X	X	X	X	(N) (NS)

Figure 2-2.--Aerial Gunner/Observer Refly Interval (Cont).

CREW CHIEF/AERIAL GUNNER/OBSERVER FLIGHT UPDATE CHAINING

<u>STAGE</u>	<u>FLIGHT</u>	<u>FLIGHTS UPDATED</u>
INT	200	
	201	200
FORM	210	
	211	210
CAL	220	
	221	210, 220
	222	220
	223	210, 211, 220, 221, 222
TERF	230	
	231	210, 230
	232	230
	233	210, 211, 230, 231, 232,
EXT	240	220
	241	220, 240
	242	220, 222, 240
	243	220, 222, 240, 241, 242
FCLP	271	
	272	271
	273	271, 272
AG	280	
	281	280
TAC	290	210, 220, 221, 230, 231
	291	210, 211, 220, 221, 222, 223, 230, 231, 232, 233, 290
CAL	320	220, 222
	321	210, 211, 220, 221, 222, 223, 320
TERF	330	230, 232
	331	210, 211, 230, 231, 232, 233, 330
EXT	341	220, 230, 240, 241
	342	220, 222, 240, 241, 242, 243, 320, 341
	343	220, 222, 230, 232, 240, 241, 242, 243, 320, 330, 341, 342
DM	350	230, 231
CQ	370	271
	371	271, 272, 370
	372	271, 272, 273, 370, 371
AG	380	280, 281
	381	280, 281, 380
TAC	390	210, 220, 221, 230, 231, 280, 281, 290
	391	210, 211, 220, 221, 222, 223, 230, 231, 232, 233, 280, 281, 290, 291, 320 321 330, 331, 380, 381, 390

Figure 2-3.--Crew Chief/Aerial Gunner/Observer Flight Update Chaining.

CREW CHIEF/AERIAL GUNNER/OBSERVER FLIGHT UPDATE CHAINING

<u>STAGE</u>	<u>FLIGHT</u>	<u>FLIGHTS UPDATED</u>
FULL-COMBAT QUALIFICATION PHASE		
HIE	400	201
	401	201
	402	201
INT	410	200
DM	450	210,231,232
	451	210,231,232
NBC	460	
MTG	480	280,281
TAC	490	210,220,221,231,232,280,290,291,380
	492	210,220,221,231,232,280

Figure 2-3.--Crew Chief/Aerial Gunner/Observer Flight Update Chaining (Cont).